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AIR & HAZARDOUS WASTE

Nu-West Industries, Inc.
3010 Conda Road
Soda Springs, Idaho 83276

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OFFICE OF AIR

TITLE V TIER I OPERATING PERMIT APPLICATION

Second Amended Version
April 1, 1999

Addendum - 4/1/99

Nu-West Industries, Inc. (Nu-West) received a letter from the Idaho Division of Environmental Quality (DEQ) informing the company of numerous changes to the Rules for Control of Air Pollution in Idaho (Rules) that could affect the accuracy of our Tier I Operating Permit (OP) application. DEQ requested that Nu-West review its Tier I OP application and provide DEQ with any necessary updates in accordance with the Rules.

Nu-West submitted its Tier I OP application on March 9, 1995 and an amended version on October 27, 1995. The latter submission was deemed "administratively complete" on December 29, 1995.

The October 27, 1995 Amended Version has been revised where appropriate and is submitted to DEQ as the Second Amended Version April 1, 1999. This version contains pollutant emission estimations obtained by using process and/or test data from 1994 to 1998. Data was updated if the data would aid DEQ in the permit review process, however all data contained in this submission remains valid.

Introduction and Overview

Nu-West Industries, Inc. (the "Company") also doing business under the Assumed Business Name: Agrium Conda Phosphate Operations, is engaged in the production and sale of concentrated, phosphate-based fertilizer products for markets primarily in western North America. All references to a "fiscal" year, previous to January 1, 1996, are to the twelve month period ended June 30 of that year.

The Company currently owns fertilizer manufacturing facilities located near Soda Springs, Idaho (the "Conda Plant") and through fiscal 1994 conducted phosphate ore mining and milling operations through a general partnership (the "Conda Partnership"). The Company was formed in July 1987 for the purpose of acquiring the Conda Plant and a 50% interest in the Conda Partnership from bankruptcy proceedings relating to Beker Industries Corp. ("Beker"). The Company acquired the other 50% interest in the Conda Partnership in July 1992.

In October 1995, Nu-West Industries, Inc. entered into a merger agreement with Agrium Inc. of Calgary, Alberta, Canada. Agrium purchased all common shares of Nu-West stocks and a transfer of ownership was completed. Executive administration changes at Nu-West were instituted within a newly revised corporate structure under Agrium.

For the purpose of unification, on April 1, 1996, Nu-West began referring to the Conda facility as Agrium Conda Phosphate Operations (Agrium CPO). A Certificate of Assumed Business Name was filed with the Secretary of State, State of Idaho on April 28, 1998. However, Nu-West Industries, Inc. still exists as a corporate entity and is still doing business legally as Nu-West Industries, Inc.

The Company's production and marketing strategy emphasizes the liquid fertilizer product Super Phosphoric Acid ("SPA"). The Company services a diverse base of agricultural customers geographically dispersed across the western portion of North America, and is perceived as a high quality manufacturer of liquid fertilizer products. The Company benefits from its close proximity to certain raw materials used in its production processes, including phosphate ore, sulfur, and sulfuric acid.

Until November 1993, the Company operated its own phosphate ore mining operation through the Conda Partnership, which has the rights to approximately 60-70 million tons of proven ore reserves (sufficient for nearly 40 years of operations at present ore consumption rates). In November 1993, the Company entered into a seven year purchase agreement with Rhône-Poulenc Basic Chemicals Company, a division of Rhône-Poulenc, Inc. ("RP") to purchase phosphate ore from a 20-year deposit owned by RP near the Conda Plant. In January 1998, the Company purchased the Rasmussen Ridge Mine from Rhodia, the successor to RP. The Company will retain its existing reserves for development in future years.

Subsequent to 1995 fiscal year end, the Company entered into an agreement with Kennecott Utah Copper Corporation ("Kennecott") for the purchase of sulfuric acid beginning in fiscal 1996. This sulfuric acid purchase contract (the "Kennecott Agreement") has replaced the production from a sulfuric acid facility (the "West Plant") at the Conda Plant which was permanently shut down on November 14, 1995.

The Company's manufacturing and administrative offices are located at 3010 Conda Road, Soda Springs, Idaho. The Company's marketing and sales offices, under direction of Agrium U.S. Inc., are located at 4582 S. Ulster St., Suite 1400, Denver, Colorado, 80237. The telephone number is (303)804-4400.

Principal Products

Phosphate fertilizers provide phosphorus, one of the three primary plant nutrients required by plant life. The other two primary nutrients are nitrogen and potassium. Phosphate fertilizer products which are made with ammonia also provide nitrogen. The principal applications of phosphate fertilizers are in the production of corn, wheat, soybeans, barley, cotton, and other small grain crops, fruits and vegetables. Phosphate rock, sulfur and anhydrous ammonia are the primary raw materials for the production of ammonium phosphate fertilizers. Phosphate rock is combined with sulfuric acid to produce phosphoric acid which is then either (i) combined with anhydrous ammonia to produce various dry granular fertilizers that are differentiated by their NPK content (% nitrogen-% phosphorus-% potassium), including DAP (18-46-0), MAP (11-52-0) and 16-20-0, or (ii) concentrated to produce liquid fertilizer products containing no nitrogen and 52% to 72% P_2O_5. The Conda Plant produces multiple products and alters its product mix to meet the changing requirements of its customers. The following is a brief description of the products manufactured at the Conda Plant.

Super Phosphoric Acid

The manufacture of liquid SPA accounts for approximately 50% of the Company's total production volume. SPA is produced by concentrating phosphoric acid to a level of 68-72% P_2O_5. The use of liquid fertilizer as a percentage of total phosphate fertilizers applied in the domestic U.S. market has grown steadily over the past few years, due to its agronomic, economic and ecologic advantages. SPA is not an end use fertilizer but is upgraded, mixed or blended with other liquid nutrients, pesticides and/or herbicides before it is applied. As a liquid, it allows for easy and precise application to crops, which makes more nutrient available for use by the plant, and can be injected below the soil in minimum-till or no-till programs to prevent leaching into waterways.

The Conda Plant has a current production capacity for SPA of approximately 160,000 P_20_5 tons annually. This represents approximately 50% to 55% of the Conda Plant's phosphoric acid capacity. The remaining capacity [minus a small percentage for Merchant Grade Acid production] is used to produce dry granular fertilizer products. Future plans include increased production of SPA.

Merchant Grade Acid

Merchant Grade Acid ("MGA"), is produced by concentrating phosphoric acid to a level of 52% P_2O_5. Like SPA, MGA contains no nitrogen and is generally diluted and mixed with other nutrients before application. The characteristics of MGA are similar to those of SPA, but because of certain processing and storage requirements the capacity to produce MGA is currently limited to approximately 14,000 P_20_5 tons per year.

Dilute Phosphoric Acid

Dilute Phosphoric Acid ("DPA") is the filter-grade acid product of the "wet-acid" phosphoric acid process. DPA is the feedstock for MGA. It has a P_2O_5 content of approximately 28%. Future plans include an increase in DPA production.

Dry Granular Products

The major dry granular fertilizer products manufactured by the Company are:

- Diammonium Phosphate ("DAP" or 18-46-0); DAP is the most common granular phosphate fertilizer product manufactured by domestic producers, and as much as 70% of total U.S. production of DAP is exported.

- Mono-ammonium Phosphate ("MAP" or 11-52-0)

- Ammonium Phosphate (16-20-0)

Existing Mining Operations

The Company began receiving phosphate ore from the Rasmussen Ridge Mine deposit in March 1994. The phosphate ore mined from this deposit contains higher quality ore with substantially lower overburden removal requirements than found in other known reserves in southeastern Idaho, including those previously mined by the Conda Partnership. Ore is received at the plant facility at the Conda Plant via rail/railcar.

Rhodia has retained responsibility for environmental exposure and liability for all [RP] mining activity previous to the Rasmussen Ridge Mine. The Company will be responsible for all reclamation work and environmental liability at the mine not indemnified by Rhodia.

The Company purchased phosphate rock from the Conda Partnership from the time the Company acquired the Conda Plant and a 50% interest in the Conda Partnership in July 1987 until November 1993, when mining ceased at the Conda Partnership mine. On July 14, 1992, the Company purchased 100% of the common stock of Western Cooperative Fertilizers (U.S.) Inc. ("WCF(US)"), a previously unaffiliated entity which owned the other 50% interest in the Conda Partnership. The transaction effectively gave the Company complete ownership of the Conda Partnership, and thereby control of significant phosphate ore reserves in southeastern Idaho and the processing facilities adjacent to the Conda Plant. The name of WCF(US) was changed to Nu-West Mining. Effective July 1, 1994, all assets of the Conda Partnership were transferred to either Nu-West Mining or the Company, and the Conda Partnership was dissolved and no longer accounted for as a separate entity. (editor's note: beginning November 1, 1994, all operations at the Conda facility are considered 'Nu-West'.)

The mining operations must meet certain reclamation requirements mandated by the Bureau of Land Management and the U.S. Forest Service. These requirements include controlling overburden disposal, backfill and reseeding. In July 1992, the Company received the 1991 Idaho Outstanding Achievement for Excellence in Reclamation for its Mountain Fuel mine from the State of Idaho and cooperating federal agencies. This award is given annually to the Idaho mining operation which, in the opinion of the state and federal agencies which have oversight in mine operation and reclamation activities, exceeds guidelines for mine site reclamation. The Company has complied with agency requirements for cash bonding to complete future reclamation of previously mined properties.

The Company currently has a completed mine plan, approved by government agencies, to mine an estimated six million tons of phosphate ore from its North Maybe Extension lease. This reserve would be the next lease to be developed. The normal progression to this property has been postponed as a result of mining activities at Rasmussen Ridge.

Manufacturing Process and Raw Materials

The Company benefits from its close proximity to sources of phosphate rock, sulfuric acid, and sulfur, the principal raw materials used in its manufacturing process. Phosphoric acid is produced through the acidulation of ground phosphate rock with sulfuric acid, water and recycled phosphoric acid in reaction tanks. The sulfuric acid reacts with the phosphate slurry to produce liquid phosphoric acid and solid gypsum crystals composed of calcium sulfate, which are physically separated. The phosphoric acid is concentrated in steam evaporators, and used as feedstock in the fertilizer production process, and the gypsum crystals are impounded. The phosphoric acid is then either (i) combined with anhydrous ammonia to produce various dry granular fertilizers, or (ii) further concentrated to produce liquid fertilizer products containing no ammonia.

The sulfuric acid used in the process is either manufactured by the Company from elemental sulfur or is purchased from third party sources. Approximately 20% of the sulfuric acid utilized at the Conda Plant is currently purchased from a third party source. All of the Company's requirements for sulfur are purchased from unaffiliated third parties who extract the sulfur as a by-product of natural gas production in western Wyoming.

On July 28, 1994, the Company entered into an agreement for the purchase of 300,000 tons of sulfuric acid per year to replace the output of the older of the two sulfuric acid facilities formerly operated at the Conda Plant. Shut down of the West Sulfuric Acid plant significantly reduced sulfur dioxide emissions. The Company will continue to produce approximately 50% of its sulfuric acid requirement after shut down of the sulfuric plant.

NuTec Mineral & Chemical Company

In January 1991, a wholly-owned subsidiary of the Company, Nu-West Minerals, Inc. ("Nu-West Minerals"), formed a joint venture, NuTec Mineral & Chemical Company ("NuTec"), with Mineral Technology Corporation ("MinTec") of Custer, South Dakota, for the development and production of high purity silica and other chemical and natural quartz products. MinTec had obtained a license from an international chemical company of the worldwide patented rights to a process which extracts high-purity synthetic silica in a gaseous form from the production of phosphoric acid. The process also includes techniques for the refinement and further purification of the extracted "wet cake" into dry synthetic silica products.

NuTec's production facilities (See Section III, ER-18, Source: S-Si-1) have been constructed at the Conda Plant for the processing of synthetic silica. These facilities have been operated sufficiently to test production capacities and to produce sample quantities of high-purity synthetic silica which have been introduced into the marketplace for analysis by prospective customers. While initial market response has been encouraging, continuous operation and process refinement will be required to meet various end-user requirements for product particle size and density. Potential end uses for which NuTec's products may serve as feedstock include high-purity glass applications, implements and crucibles used in the production of silicon crystals, low alpha fillers used for silicon chip encapsulation, fibre optic wave guides, high temperature lighting and other technical applications. No attempt at commercial operations will be undertaken, however, unless and until NuTec is successful in marketing its products and in obtaining sufficient additional working capital from outside sources to sustain operations. Uncertainty remains at this time as to the success of the production scale processes, availability of working capital, and the ultimate acceptance and marketing of NuTec's products.

WASH PLANT PROCESS DESCRIPTION SECTION

(The Wash Plant is a wet grinding process and is not considered an air pollution source. This section submitted for reference information only.)

(See Section III, ER-3, Source: S-W-1)

A. Material Flows

The function of the Wash Plant is to upgrade ore by removal of the fines and to crush the ore to a size that is easily calcined.

Ore is fed to the plant on the #7 feed belt and is dumped into the raw ore bin. The ore is fed from the bin to the ore scrubber by way of a belt feeder. This feeder is equipped with a vari-drive which allows control of the feed rate to the Wash Plant. The ore is mixed with water in the ore scrubber to help break up and separate the clays. The ore discharges from the scrubber onto the scrubber trommel screen, where it is separated into -1/4", + 1/4" - 1 3/8", and +1 3/8" size fractions.

The -1/4" material goes directly to the first stage sump. From here it is pumped through the first stage cyclones, where the initial separation of the fines is made. The first stage cyclones are equipped with fixed apexes and require no adjustments from operators. The overflows from these cyclones which contains the fines goes directly to tails. The underflow product from the first stage cyclones discharges into the second stage sump. From here, the material is pumped to the seconds stage cyclones. These cyclones are equipped with fixed apexes which require no adjustments by the operator. The overflow containing the fines from the second stage cyclones is recycled back to the ore scrubber through the weirbox at the third stage sump. The coarser underflow product from the second stage cyclones discharges into the third stage sump. The material is pumped from the third stage sump to the third stage cyclones, where the final separation is made. These cyclones are equipped with variable apexes and cyclo-washes to help remove all the remaining fines. The overflow from the third stage cyclones flows back to the second stage sump. The underflow product from the third stage cyclones discharges onto the belt filters. Approximately 42% of the third stage underflow is recycled back to the first stage sump.

The material which is +1/4, -1 3/8" in size is sent to the rod mill from the scrubber trommel. The + 1 3/8" material from the ore scrubber goes through the impact crusher before it is sent to the rod mill. This material is ground in the mill and discharges onto the rod mill trommel screen. Material which is 1/4" in size is pumped to the first stage sump. Material which is +1/4", -1" in size is recycled back through the rod mill to be reground. Material which leaves the rod mill and is +1" in size is discarded.

B. Water Balance

Proper control over the water balance in the Wash Plant is essential to good operation. Poor control over the flows of water in the plant results in excessive pump wear due to cavitation, loss of product due to sump overflows, and poor cyclone performance. The water flows in the Wash Plant are considered to be in balance when no sumps are running over and all sumps are running nearly full. The water balance is maintained by the operator by making manual adjustments to the incoming water flows. Water enters the plant as follows:

SOURCE FLOW	GPM
1) Ore scrubber makeup	300 - 500
2) Pan feeder chute sprays	50
3) Ore scrubber trommel sprays & +1/4	300
4) Rod mill sump makeup	75
5) Rod mill trommel sprays	300
6) Rod mill floor sump makeup	0 - 100
7) Third stage sump makeup	400 - 600
8) Third stage #4 scrubber	800 - 1000
9) Extractor cloth sprays	100 - 150
10) Product belt pan drains	50
11) Third stage cyclowashes	150
12) Pump gland water	50
13) Moisture in the raw ore feed	130
14) Extractor weirboxes	0 - 150
15) Miscellaneous clean up water	0 - 150
Normal water inflow	3500

During normal operation, there are only three ways that water can leave the plant:

FLOW	
1) First stage cyclone overflow tails	3300
2) Extractor vacuum pump exhaust	50
3) Moisture in the washed rock	150
Normal water outflow	3500

The overflow from the first stage cyclones goes directly to the tailings sump. This material is also known as the Wash Plant tails, and is pumped to the tailings pond from the tailings sump. The extractor vacuum pump exhaust and the washed rock moisture make only a minor contribution to the total water flow out of the plant, and for most purposes they can be ignored.

Therefore the only way water can leave the Wash Plant, is through the overflow of the first stage cyclones.

The rate of water overflow from the first stage cyclones is governed mainly by the performance of the first stage pumps. During normal operation, this flow changes little so the total volume of water leaving the Wash Plant remains constant. Since anything that goes into the Wash Plant must come out, it follows that the total flow of water into the Wash Plant must also remain constant. Although water must leave by way of the Wash Plant tails, water can enter the plant by any one of the fifteen sources previously outlined. Only the total flow of water into the plant is fixed, the water can be sub-divided in dozens of ways among the various incoming water flows.

The levels in all the sumps except the first stage sump are automatically maintained. The third stage, and tailings sumps are equipped with automatic level controllers which will maintain these sumps at constant levels. The controller on the third stage sump maintain the level by adjusting the amount of makeup water going to the sump. The level controller on the tails sump maintains level by controlling the amount of material being pumped out. The level in the second stage sump is maintained by an overflow weir box/baffle arrangement. The Wash Plant was designed so that this sump always overflows some material to the first stage sump, so no level controller is needed here.

Any change in the plant water balance will therefore show up as a change in the level of the first stage sump. Watching the level of this sump provides the Wash Plant operator with a quick and easy way of determining whether or not the water in the Wash Plant is balanced. When a change in level in the first stage sump is observed, the Wash Plant operator will normally re-adjust one of the incoming water flows (usually the scrubber makeup water) to correct the change.

In many cases changes in the flows of water are compensated for automatically by the sump level controllers. These changes most often go unnoticed because they are automatically corrected and do not alter the level in any of the sumps. For instance, if the flow of calciner scrubber water to the third stage sump is reduced, the third stage sump level controller will open the valve on the makeup water line and add more makeup water to the sump. The amount of extra makeup water added will exactly equal the amount by which the scrubber water was reduced, and there will be no net change in the water balance.

As mentioned earlier, the flow to tailings is governed by the performance of the first stage pump. If the flow from this pump drops off, the flow to tailings will be reduced. The net effect of this is a rise in the level of the first stage sump. This is another example of a case where manual adjustment would be required. In this instance, the simplest thing for the operator to do would be to cut back on the flow of water to the ore scrubber.

Sometimes changes can take place in the water balance which have causes that are not immediately obvious. For instance, the performance of the third stage pump may deteriorate, reducing the flow to the third stage cyclones. The third stage sump level controller would respond to this by reducing the amount of makeup water going to the third stage sump. No change in level in the third stage sump would be detected, but the amount of water recycling back to the first stage sump would be reduced. The first indication the operator would have that things were amiss would be a drop in the level of the first stage sump, even though the problem was in the third stage. These types of problems are covered more completely in the troubleshooting section and are one reason why taking proper readings and watching the plant closely are so important to the operation of the Wash Plant.

II. THEORY AND PRACTICE

DRYER PLANT

A. Theory

See Section III, ER-4, Source: S-D-1.

Fluid bed processing, well known in the petroleum, chemical and metallurgical industries, may also be used advantageously for drying. The process involves a Reactor or Dryer having a fluid bed in which intimate gas-solids contact is obtained. In the "fluid" bed, the treatment gas is blown through a mass of solid particles at a velocity which causes the mass to become turbulent so that it resembles a boiling liquid. Because of the violent agitation, heat exchange is extremely rapid and uniform temperature exists throughout the fluid bed.

B. Practice

Drying of the wet feed material is carried out in the FluoSolids Dryer by passing heated air up through the Reactor. The hot gases from the air heater pass up through the constriction plate and make the bed of solids above the constriction plate fluid. The up-flowing hot gases supply the heat to evaporate the

B. Practice (Cont'd)

water and carry the water vapor and fine solids up through the freeboard and exit through the Reactor top to the dust collection system.

The gases traveling up through the fluid bed will carry out solid particles that have a settling rate in the gas medium lower than the upward velocity of the gases. The design data indicates an approximate 35 mesh sizing action. Thus, when drying flotation concentrates, it is anticipated that 60 to 70% of the dried product will report in the cyclone collector discharge.

The heat input to the drying system is controlled by a manual control instrument which regulates the fuel supply to the burner.

The desired product moisture is obtained by regulating the flow of feed to the dryer unit after the windbox temperature and air flow have been established. The temperature of the fluid bed is measured by a temperature control instrument, which regulates the speed, and consequently, the output of the dryer feeder.

B. Practice (Cont'd)

At any given temperature, the exit gases have a certain moisture carrying capacity. If moisture is condensing in the dry dust collection system, then the moisture carrying capacity of the exit gases is being exceeded. If this is the case, condensation can be prevented by raising the drying temperature or increasing the air flow or by combination of the two.

New feed entering the dryer is dried very rapidly so that the bed consists almost entirely of dry material. The drying bed material is discharged from the dryer through a nozzle in the side of the Reactor located just above the top surface of the constriction plate, and opposite the feed inlet port. The fluid bed depth is determined by measuring the static pressure at the bottom of the fluid bed and also in the freeboard above the fluid bed. The pressure differential between these two is an indication of the fluid bed depth. The pressure differential is transmitted to the bed level controller which automatically opens or closes

B. <u>Practice</u> (Cont'd)

the discharge valve to maintain the fluid bed depth at the desired level.

II. THEORY AND PRACTICE

NORTH CALCINER

A. THEORY

See Section III, ER-5, Source: S-Cb-1

Fluid bed processing, well known in the petroleum, chemical and metallurgical industries, may also be used advantageously for calcining phosphate rock. The process involves a Reactor or Calciner having one or more "fluid" beds in which intimate gas-solids contact is obtained. In each "fluid" bed, the treatment gas is blown through a mass of the solid particles at a velocity which causes the mass to become turbulent so that it resembles a boiling liquid. Because of the violent agitation, heat exchange is extremely rapid and uniform temperature exists throughout the bed, usually within $\pm$ 10°F.

Fluid bed calcination of phosphate rock is accomplished by heating the rock to a sufficiently high temperature to cause oxidation and removal of the carbonaceous material adhering to the rock grains. Calcination or oxidation of the carbonaceous material is almost instantaneous at 1500°F and actually supplies a portion of the heat requirements for the operation.

The rock enters the preheat compartment with accompaning surface moisture which is driven off prior to calcination. The removal of this moisture is also beneficial to downstream processing.

B. Practice

The phosphate rock calcining system is divided into two basic parts. The first is the calcination system in which the rock is preheated and calcined to remove the extraneous material. The second part is the cooling system which produces cooled rock ready for use.

1. Calcination System

The calcination system is a three compartment Reactor in which the top bed is for preheating and drying the rock, the middle bed is for high temperature calcination, and the bottom bed for cooling the rock and preheating the air. Within the Reactor, solids and gas flow are counter current; the solids flowing downward and the gases flowing upward. The rock from the feed system is fed into the bed of the preheat compartment. Heat for preheating is supplied by the hot gases rising from the calcination compartment. Heat to the calcination compartment is obtained by direct bed burning of oil or gas distributed by "oil-guns" or "gas-guns" located around the periphery at the bottom of the calcination compartment. Complete combustion of the oil or gas is obtained by maintaining an excess of air rising from the chamber below. At calcination temperature of 1450°F or higher, immediate oxidation of the carbonaceous material occurs and carbon dioxide and water vapor evolves. Gases from the calcination chamber are passed through "Hot" cyclones for removal of fine rock before entering the preheat compartment. The fine rock caught in the cyclones is discharged directly to the after-cooling reactor.

Dry, preheated rock is allowed to flow through an external underflow pipe into the calcination compartment at a rate which is automatically controlled to maintain a predetermined bed depth within the preheat compartment. Similarly the calcined rock is allowed to flow through an internal transfer pipe from the calcination chamber into the cooling compartment at a rate which keeps the depth of the calcination bed constant. Any fine rock carried out of the top of the preheat compartment is caught in a "Cold" cyclone and returned to the calcination compartment of the Reactor. An automatic valve is also used to control the discharge rate of the cooling compartment to the aftercooler, and maintain a predetermined bed depth within the cooling compartment.

2. Cooling System

The cooling system consists of a single compartment fluid bed spray cooler. Hot calcined rock is transferred from the cooling compartment of the calcination Reactor into the aftercooler where water is sprayed into the fluidized bed to cool the rock to approximately 250°F by direct evaporation. Fine rock carried out of the spray cooler is caught in an "aftercooler" cyclone and discharged to the product conveyor. The bed depth in the aftercooler is maintained by an automatic discharge valve, which maintains a certain bed level, directly to the product conveyor.

II. Theory and Practice

#4 CALCINER

See Section III, ER-6, Source: S-Ca-1

A. Theory

Fluid bed processing, well known in the petroleum, chemical and metallurgical industries, may also be used advantageously for calcining phosphate rock. The process involves a Reactor or Calciner having one or more "fluid" beds in which intimate gas-solids contact is obtained. In each "fluid" bed, the treatment gas is blown through a mass of the solid particles at a velocity which causes the mass to become turbulent so that it resembles a boiling liquid. Because of the violent agitation, heat exchange is extremely rapid and uniform temperature exists throughout the bed, usually within $\pm 10^{\circ}F$.

Fluid bed calcination of phosphate rock is accomplished by heating the rock to a sufficiently high temperature to cause oxidation and removal of the carbonaceous material adhering to the rock grains. Calcination or oxidation of the carbonaceous material is almost instantaneous at $1450^{\circ}F$ and actually supplies a portion of the heat requirements for the operation.

A second feature of calcination is that hydrated water molecularly attached to the phosphate rock is librated at these elevated temperatures and driven off as water vapor. Also, carbonate compounds are similarly disassociated from the rock and driven off as carbon dioxide gas. The removal of the carbonaceous material, hydrated water and carbonate has a beneficial effect on downstream processes of the fertilizer manufacture.

II. THEORY AND PRACTICE (Continued)

B. PRACTICE

The phosphate rock calcining system is divided into two basic parts. The first is the calcination system in which the rock is preheated and calcined to remove the carbonaceous material. The second part is the cooling system which produces cooled rock ready for use.

1. Calcination System

The calcination system is a three compartment Reactor in which the top bed is for preheating and drying the rock, the middle bed is for high temperature calcination, and the bottom bed is for cooling the rock and preheating the air. Within the Reactor, solids and gas flow are counter current; the solids flowing downward and the gases flowing upward. The rock from the feed system is fed into the bed of the preheat compartment. Heat for preheating is supplied by the hot gases rising from the calcination compartment. Heat to the calcination compartment is obtained by direct bed burning of natural gas or oil distributed by "bed-guns" located around the periphery at the bottom of the calcination compartment. Complete combustion of the fuel is obtained by maintaining an excess of air rising from the chamber below. At calcination temperature of 1500°F or higher, immediate oxidation of the fine carbonaceous material takes place. Gases from the calcination chamber are

II. THEORY AND PRACTICE (Continued)

B. PRACTICE (Continued)

passed through "Hot" cyclones for removal of fine rock before entering the preheat compartment. The fine rock caught in the cyclones is discharged directly to the after-cooling reactor.

Dry, preheated rock is allowed to flow through an external underflow pipe into the calcination compartment at a rate which is automatically controlled to maintain a predetermined bed depth within the preheat compartment. Similarly the calcined rock is allowed to flow through an internal transfer pipe from the calcination chamber into the cooling compartment at a rate which keeps the depth of the calcination bed constant. Any fine rock carried out of the top or preheat compartment is caught in a "Cold" cyclone and returned to the calcination compartment of the Reactor. An automatic valve is also used to control the discharge rate of the cooling compartment to the after cooler, and maintain a predetermined bed depth within the cooling compartment.

2. Cooling System

The cooling system consists of a single compartment fluid bed spray cooler. Hot calcined rock is transferred from the cooling compartment of the calcination Reactor into the cooling Reactor where water is sprayed into the fluidized bed to cool

II. THEORY AND PRACTICE (Continued)

B. PRACTICE (Continued)

the rock to approximately 250°F by direct evaporation. Fine rock carried out of the spray cooler is caught in a "Cooler" cyclone and discharged to the product conveyor. The bed depth in the after cooler is maintained by an automatic discharge valve, which maintains a certain bed level, directly to the product conveyor.

Phosphoric Acid Plant - (See Section III, ER-17, Source: S-Pa-1)

PROCESS DESCRIPTION

The raw ore is brought down from the mine in rail cars and unloaded with a rollover. It is fed into the WASH PLANT where most of the unwanted material is removed. From there it goes to the CALCINER where it is roasted to remove organic matter. These steps are known as BENEFICIATION. After leaving the calciner, the rock is stored in a silo referred to as the "RED HEN." (See the flow diagrams). The rock (ore) is fed by four screws from the bottom of that silo onto #10 conveyor belt and up to the top of the BALL MILL where it goes into two surge bins. From there it is fed to two grinding mills where it is pulverized into a fine powder and stored in another silo at the PHOSPHORIC ACID PLANT.

At the Phosphoric Acid Plant, the rock is fed, along with water, sulfuric acid and recycle acid, into a series of three tanks called DIGESTERS. Here it is mixed together and circulated around while a chemical reaction takes place forming a slurry of 30% phosphoric acid and crystals of calcium sulfate known as GYPSUM. The slurry is fed to a pair of Bird circular pan filters where the 30% acid is separated from the gypsum and stored in Tank 12. The "gyp" is pumped to a storage site known as the GYP POND.

The 30% acid is sometimes sold at that concentration to other suppliers and users. However, most of the acid is concentrated using a series of eight EVAPORATORS which use steam heaters and vacuum systems with condensers to remove some of the water. This acid is stored in tanks and some of it is sold as Merchant Grade (52%). Some of it is further upgraded to SPA (70%) using special evaporators with natural gas fired Therminol heaters to provide the necessary high temperature needed and is then stored in other tanks. In addition, some of the intermediate grades of acid are pumped to the DAP plant where a variety of dry granulated fertilizer is made. The SPA grade acid is further upgraded by removing impurities using three press filters before it is loaded on trucks and rail cars.

DAP PROCESS DESCRIPTION

(See Section III, ER-11, Sources: S-Fa-1, 2, & 3)

The DAP Plant produces three different grades of dry products. Phosphoric acid from the Phos Acid Plant and ammonia, which is purchased from outside the plant, are the primary raw materials. Ammonia may be delivered to the plant by either rail or truck. The three products are differentiated by the amounts of ammonia and phosphate they contain.

The basic reaction involved in all of the different products is the neutralization of the phosphoric acid by the ammonia. This generates a large quantity of heat and is responsible for the steam plume which may be seen exiting the DAP stack.

At various points in the process, dust, fluorine fumes, or ammonia fumes are generated. A series of four scrubbers are used to remove these fumes from the air exiting the plant. Phosphoric acid and water are used as the scrubbing media.

The scrubbing solution, which has absorbed the various fumes and dust, is fed to the preneutralizer, where more ammonia is added. The preneutralizer solution is referred to as slurry. It is a hot, thick and sticky solution which has been partially neutralized.

The slurry is fed to the granulator where it is sprayed on a rolling bed of fine-sized product. More ammonia is sparged beneath the surface of the bed. The ammonia addition completes the neutralization and generates more heat. This heat causes the slurry to evaporate and the rotating motion of the bed causes the fine product to grow into larger, round granules.

The granulator discharges to a rotary dryer where almost all of the moisture is removed from the granules. The dryer discharges onto a conveyor belt that feeds the primary elevator. This is a bucket type elevator which conveys the product to the top of the DAP Plant and feeds a series of vibrating screens. The purpose of the screens is to reject product that is either too large or too small. The proper sized product is fed to a rotary cooler via a series of chutes and conveyor belts. It is air cooled and conveyed to the dry product warehouse for storage. A dust-suppression solution is sprayed on the product at the exit of the rotary cooler.

The product that is too small in size drops through the screens and is recycled to the granulator via two drags and another elevator. The over-sized particles are conveyed to a series of rotating cage mills. The mills break down the over-size material into fines which are also recycled to the granulator. Plants of this type typically have high recycle loads, that is, a large portion of the material exiting the granulator, including some on-size product, is fed beck to the granulator. This is necessary to maintain the rolling bed and control granulator temperatures.

SHIPPING PROCESS DESCRIPTION

(See Section III, ER-12, Sources: F-Fb-1 and F-Fb-2)

The DAP Plant produces four different grades of dry fertilizer. It is conveyed to the Shipping Warehouses and stored until time to ship to customers.

The South Warehouse holds 31,000 tons of 11-52-0 (MAP) when full. The North Warehouse contains two products: 18-46-0 (DAP) and 16-20-0 (AP) - there are 21,000 tons between both the DAP and AP products. The product is treated with a dust-suppression solution at the DAP Plant for dust control before proceeding to storage.

There are three payloaders available for use to transfer the product from the warehouse, to the feeders, conveyers, and to loadout.

The product flows from the feeders located in the warehouses to an elevator, to the top of the shipping building and into the distribution screws. Product then flows over a series of Tyler screens which split and screen the product.

The oversize product goes through a grinder and returns to the elevator to be screened again.

The product fines go to the floor to be reprocessed in the DAP Plant.

Sized product goes across a weigh belt scale before being loaded in railroad cars or trucks. Additional dust-suppression solution may be added may be added to suit customer requirements.

Loaded railroad cars or trucks are weighed by platform scales.

SECTION 1

GENERAL INFORMATION

COMPANY & DIVISION NAME
Nu-West Industries, Inc.

STREET ADDRESS OR P.O. BOX	CITY	STATE	ZIP
3010 Conda Road	Soda Springs	ID	83276 -

PERSON TO CONTACT	TITLE	PHONE NUMBER
Monty Johnson	Environmental Manager	(208)-547-4381

EXACT PLANT LOCATION
7 mi. North of Soda Springs 1.2 mi. East of HWY 34

GENERAL NATURE OF BUSINESS/PRODUCTS
Phosphate based fertilizer products

NUMBER FULL-TIME EMPLOYEES	PROPERTY AREA (ACRES)	REASON FOR APPLICATION * (SEE BELOW)	DISTANCE TO NEAREST STATE BORDER (MILES)
295	1420	5	30

PRIMARY SIC	SECONDARY SIC	PLANT LOCATION COUNTY	ELEVATION (FT)	UTM ZONE		UTM Y CORRDINATE (KM)
287		Caribou	6155	12	455.8	4731.8

NAME OF OTHER FACILITIES **	LOCATION OF OTHER FACILITIES
Rasmussen Ridge Mine (active)	Dry Valley area
Inactive mines: North and South Maybe; Champ; Mountain Fuel;	
Georgetown Canyon	

OWNER OR RESPONSIBLE OFFICIAL	TITLE
Don G. LaRue	General Manager

Based on information and belief formed after reasonable inquiry, I certify the statements and information in this document are true, accurate, & complete.

SIGNATURE OF OWNER OR RESPONSIBLE OFFICIAL	DATE
[signature]	04/01/98

* **(1) Permit to construct a new facility; (2) Permit to modify an existing source; (3) Permit to construct a new source at an existing facility; (4) Change of Owner or Location; (5) Tier I Permit to Operate; (6) Tier II Permit to Operate.**

** **List all facilities within the state that are under your control, or under common control, and have emissions to the air. If none, so state.**

cda\c:\data\lotus\applicat\airsct1.wk1

DEQ TRACKING DATA

DEQ USE ONLY			DEQ USE ONLY			DEQ USE ONLY		
PLANT ID	AQCR	DATE RECEIVED	REVIEWER	SIP	NSPS	PSD APPLICABLE	NON-ATTAINMENT AREA	NESHAPS
- -		/ /						

FIRST COMPLETENESS DATE	INCOMPLETENESS RESPONSE	SECOND COMPLETENESS DATE	PERMIT ISSUANCE DATE	CONSTRUCTION START DATE	SOURCE START DATE
/ /	/ /	/ /	/ /	/ /	/ /

NOTES:

cda\c:\data\lotus\applicat\airsct1.wk1

Section 2
Emission Data
(IDAPA 16.01.01.314.04)

As per recent EPA guidance, the emission inventory provided contains information to the extent needed to determine major source status of the facility, to verify the applicability requirements, part 70 or applicable requirements, to verify compliance with applicable requirements, and to compute an annual fee. The emission inventory provided is not intended to become an annual limit in the Title V Operating Permit. The emission inventory provided is only indented to be consistent with what is required by the registration fee program and is not required as part of the part 70 permit process.

Operational flexibility is requested concerning throughput and operation of all individual plant equipment located at the facility.

Stack or source tests refereed to in the emission inventory information are on file at IDEQ. Emission estimates based on stack or source tests are not intended to become annual limits.

Unregulated Emissions

Nu-West Industries, Inc. operates various pieces of equipment that may have unregulated emissions. The Calciners, for instance, are regulated by permit for PM and Fluoride emissions, however, the Calciners also may emit NO_x, CO, VOC, PM_{10}, SO_2, and HAPs, which are unregulated. These unregulated emissions from the Calciners have been addressed in Section III to the extent that these emissions emanate from the combustion of natural gas and/or coal in the Calciners.

Point source emissions of PM and Fluorides from the exhaust stacks of the Phosphoric Acid Plant and the DAP Plant are regulated by permit. Fugitive emissions from phosphoric acid facilities are currently unregulated. NESHAPs regulations regarding fluoride emissions have not yet been established for phosphoric acid facilities, although a proposed rule is expected to be promulgated in November 1999. As standards are set for the control of fluorides (ie; RACT, BACT, MACT), Nu-West will address the matter in more detail and intends to comply with all applicable requirements.

Phosphogypsum, a high-volume by-product waste from phosphoric acid production, and process waste water, are excluded from regulation at 40CFR60.261.4(b)(7). HAPs emissions from phosphogypsum stacks and process waste water ponds are expected to be addressed by the above mentioned NESHAP.

Ammonia emissions from the DAP Plant are not regulated by permit, however, these emissions are estimated and reported to the EPA and the SERC as part of Nu-West's annual EPCRA 313 Toxic Chemical Inventory Report.

Emissions Reference Unit Pollutant Estimation

ER-1

Source: F-Oa-1

Ore Unloading and Storage

Air pollutant emissions from unprocessed phosphate ore are largely ignored in AP-42. There is much discussion of pollutant emissions from phosphate ore after beneficiation, drying, and/or calcining has taken place, but no emission estimate calculations are listed for receiving phosphate ore from the mine or storage of phosphate ore before processing.

For lack of a better method to estimate air pollutant emissions from phosphate ore receiving and storage before processing at the Nu-West facility, the following exercise uses the emission estimation factor found in AP-42, Supplement B, 11.2.3.3 ("Aggregate Handling and Storage Piles").

$E = k(0.0032)\ [(U/5)^{1.3} / (M/2)^{1.4}]$ (lb/ton)

Where: E = emission factor (lb/ton)
k = particle size multiplier (found in table 11.2.3-2.)
U = mean wind speed (mph)
M = material moisture content (%)

The phosphate ore received at the facility typically contains 9% to 12% natural moisture; M = 10.5
Wind speed measurements taken at the facility from 1992 through January 1995 show U = 3.0
For the purpose of this exercise, the "worst-case" particle size multiplier will be used; k = 0.74

$E = 0.74(0.0032)\ [(3.0/5)^{1.3} / (10.5/2)^{1.4}]$ (lb/ton) = 0.0001196 lbs/ton

1,886,883 tons of phosphate ore were unloaded and transferred to storage piles in CY 1994 in approximately 1258 operating hours. The diagram labeled "Ore Unloading and Storage" illustrates the general layout of unprocessed ore handling at the facility. The conveyor system can feed two (2) piles at one time. A total of seven (7) "unenclosed" "drop" points may occur while feeding two (2) piles. The following calculation estimates the maximum actual PM emissions from the unloading, transfer and storage of unprocessed ore at the facility:

0.0001196 lb/ton * 1,886,883 tons/1258 hrs * 7 = 1.26 lbs/hr

Note; Ore storage piles are managed by the use of dozers to push and redimension the piles on an on-going basis. This activity does not involve any "drop" operation and is not considered significant to the above estimation.

Data used from calendar year 1994 or fiscal year 1994 are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 7: SOLID MATERIAL TRANSPORT, HANDLING, AND STORAGE

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-1, F-Oa-1, Ore Unloading and Storage

STACK DESCRIPTION: NA

BUILDING DESCRIPTION: North end of Facility

DATE INSTALLED OR LAST MODIFIED:

MATERIAL DESCRIPTION:

MATERIAL TRANSFER RATES

MAXIMUM HOURLY TRANSFER RATE (UNITS/HOUR):

NORMAL HOURLY TRANSFER RATE (UNITS/HOUR):

NORMAL ANNUAL TRANFER RATE (UNITS/YEAR): 2 mill.

UNITS OF MEASURE: ton

BELT CONVEYOR/VEHICLE TRANSFER

NUMBER OF TRANSFERS: 7

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT): 10.5

MAXIMUM HOURLY WIND SPEED (MPH):

AVERAGE HOURLY WIND SPEED (MPH): 3

CONVEYORS ENCLOSED? (Y/N): N

CONVEYORS IN BUILDINGS? (Y/N): N

TRANSFERS ENCLOSED? (Y/N): Y/N

TRANSFERS IN BUILDINGS? (Y/N): Y/N

PNEUMATIC CONVEYOR TRANSFERS

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT):

PRIMARY SEPARATOR TYPE:

PRIMARY SEPARATOR PERCENT EFFICIENCY:

SECONDARY SEPARATOR TYPE:

SECONDARY SEPARATOR PERCENT EFFICIENCY:

MATERIAL STORAGE DATA

PILE? (Y/N): Y

STORAGE CAPACITY: 13.3 acres

PILE LENGTH (FT):

SILO? (Y/N):

STORAGE CAPACITY UNITS: acres

PILE WIDTH (FT):

OTHER STORAGE TYPE DESCRIPTION:

PILE HEIGHT (FT):

MATERIAL DATA

HAP DESCRIPTION	HAP CAS NUMBER	HAP FRACTION IN MATERIAL BY WEIGHT

SECTION 7, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER		OPERATING SCHEDULE	
DEC – FEB		HOURS/DAY	
MAR – MAY		DAYS/WEEK	
JUN – AUG		WEEKS/YEAR	
SEP – NOV			

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

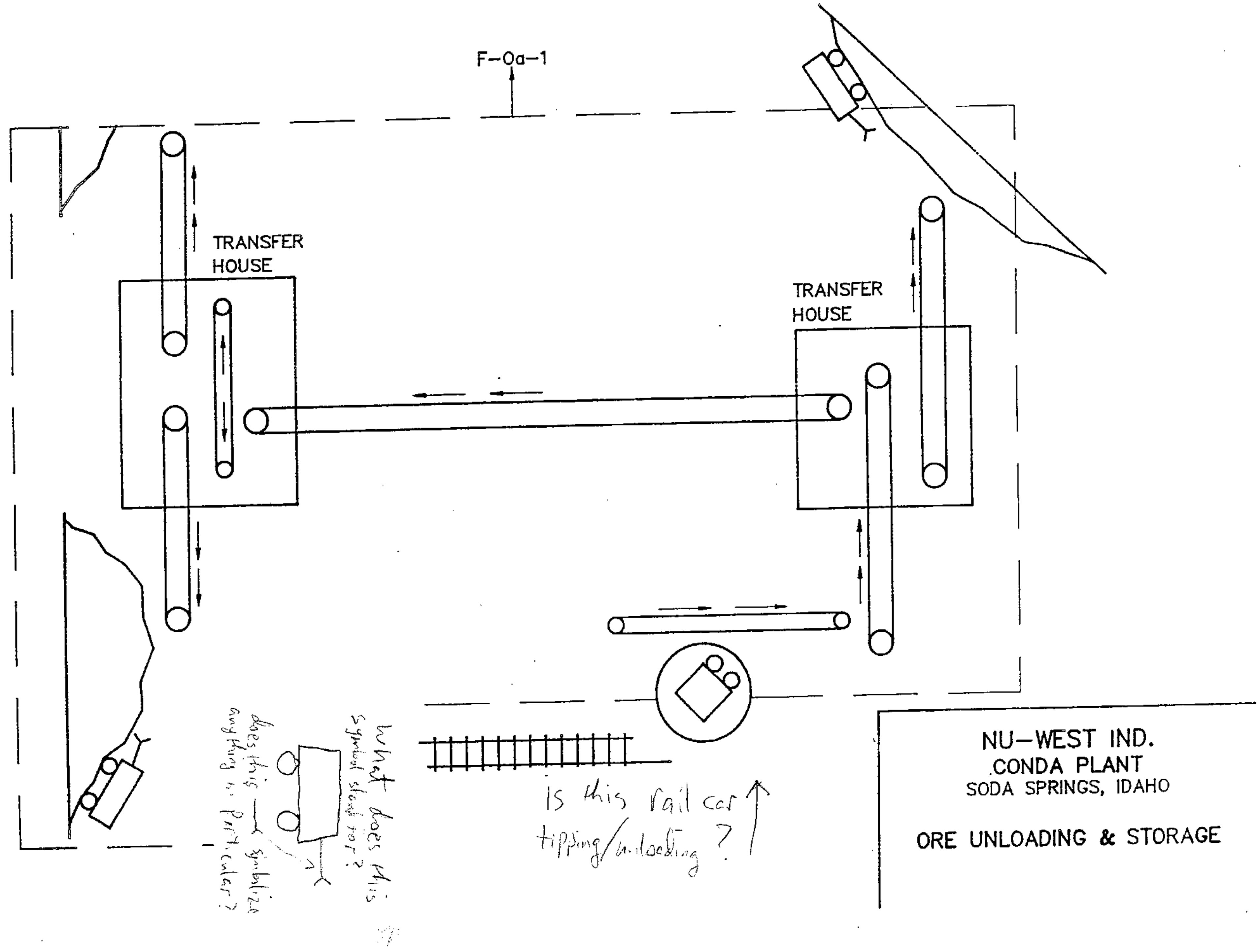
AIR POLLUTANT EMISSIONS

* See Emission Reference Unit Pollutant Estimation ER-1

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	(TONS/YR)	REFERENCE
PM							
PM – 10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.



NU-WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

ORE UNLOADING & STORAGE

Emissions Reference Unit Pollutant Estimation

ER-2

Source: F-Ob-1

Ore Storage to Wash Plant

Air pollutant emissions from unprocessed phosphate ore are largely ignored in AP-42. There is much discussion of pollutant emissions from phosphate ore after beneficiation, drying, and/or calcining has taken place, but no emission estimate calculations are listed for receiving phosphate ore from the mine or storage of phosphate ore before processing.

For lack of a better method to estimate air pollutant emissions from phosphate ore transfer from storage into the Wash Plant before processing, the following exercise uses the emission estimation factor found in AP-42, Supplement B, 11.2.3.3 ("Aggregate Handling and Storage Piles") to estimate emissions from each point where there is a "drop" operation.

$E = k(0.0032)\ [(U/5)^{1.3} / (M/2)^{1.4}]$ (lb/ton)

Where: E = emission factor (lb/ton)
k = particle size multiplier (found in table 11.2.3-2.)
U = mean wind speed (mph)
M = material moisture content (%)

The phosphate ore transfered from the storage piles into the Wash Plant typically contains 9% to 12% natural moisture; M = 10.5
Wind speed measurements taken at the facility from 1992 through January 1995 show U = 3.0
For the purpose of this exercise, the "worst-case" particle size multiplier will be used; k = 0.74

$E = 0.74(0.0032)\ [(3.0/5)^{1.3} / (10.5/2)^{1.4}]$ (lb/ton) = 0.0001196 lbs/ton

1,569,337 tons of phosphate ore were fed to the wash plant in FY 1994 in 4019 operating hours. The diagram labeled "Ore Storage to Wash Plant" illustrates the general layout of unprocessed ore transfer from the storage piles into the Wash Plant. A total of seven (7) "unenclosed" "drop" points may occur while transfering ore from the storage piles into the Wash Plant. The following calculation estimates the emissions from this ore transfer at the facility:

0.0001196 lb/ton * 1,569,337 tons/4019 hrs * 7 = 0.32 lbs/hr

Run-of-mine coal is added to the processed ore in this stage of the ore processing operation. The coal is fed into process through a separate conveyor system with four (4) "drop" points including the truck dump into the coal storage pile. The mean quantity of coal used in one year is approximately 15,200 tons. Moisture content of the coal is quoted from the suppier at 19.1%.

$E = 0.74(0.0032)\ [(3.0/5)^{1.3} / (19.1/2)^{1.4}]$ lb/ton = 0.0000517 lbs/ton

0.0000517 lb/ton * 15,200 tons/4019 hrs * 4 = 0.0008 lbs/hr

Data used from calendar year 1994 or fiscal year 1994 are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 7: SOLID MATERIAL TRANSPORT, HANDLING, AND STORAGE

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-2, F-Ob-1, Ore Storage to Wash Plant

STACK DESCRIPTION: NA

BUILDING DESCRIPTION: North end of Facility

DATE INSTALLED OR LAST MODIFIED:

MATERIAL DESCRIPTION: Phosphate Ore

MATERIAL TRANSFER RATES

MAXIMUM HOURLY TRANSFER RATE (UNITS/HOUR):

NORMAL HOULRY TRANSFER RATE (UNITS/HOUR):

NORMAL ANNUAL TRANFER RATE (UNITS/YEAR): 1.6 MM

UNITS OF MEASURE: tons

BELT CONVEYOR/VEHICLE TRANSFER

NUMBER OF TRANSFERS: 7

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT): 10.5

MAXIMUM HOURLY WIND SPEED (MPH):

AVERAGE HOURLY WIND SPEED (MPH): 3

CONVEYORS ENCLOSED? (Y/N): Y/N

CONVEYORS IN BUILDINGS? (Y/N): N

TRANSFERS ENCLOSED? (Y/N): Y/N

TRANSFERS IN BUILDINGS? (Y/N): Y/N

PNEUMATIC CONVEYOR TRANSFERS

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT):

PRIMARY SEPARATOR TYPE:

PRIMARY SEPARATOR PERCENT EFFICIENCY:

SECONDARY SEPARATOR TYPE:

SECONDARY SEPARATOR PERCENT EFFICIENCY:

MATERIAL STORAGE DATA

PILE? (Y/N): Y

STORAGE CAPACITY: 13.3

PILE LENGTH (FT):

SILO? (Y/N):

STORAGE CAPACITY UNITS: acres

PILE WIDTH (FT):

OTHER STORAGE TYPE DESCRIPTION:

PILE HEIGHT (FT):

MATERIAL DATA

HAP DESCRIPTION	HAP CAS NUMBER	HAP FRACTION IN MATERIAL BY WEIGHT

SECTION 7, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC—FEB	
MAR—MAY	
JUN—AUG	
SEP—NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

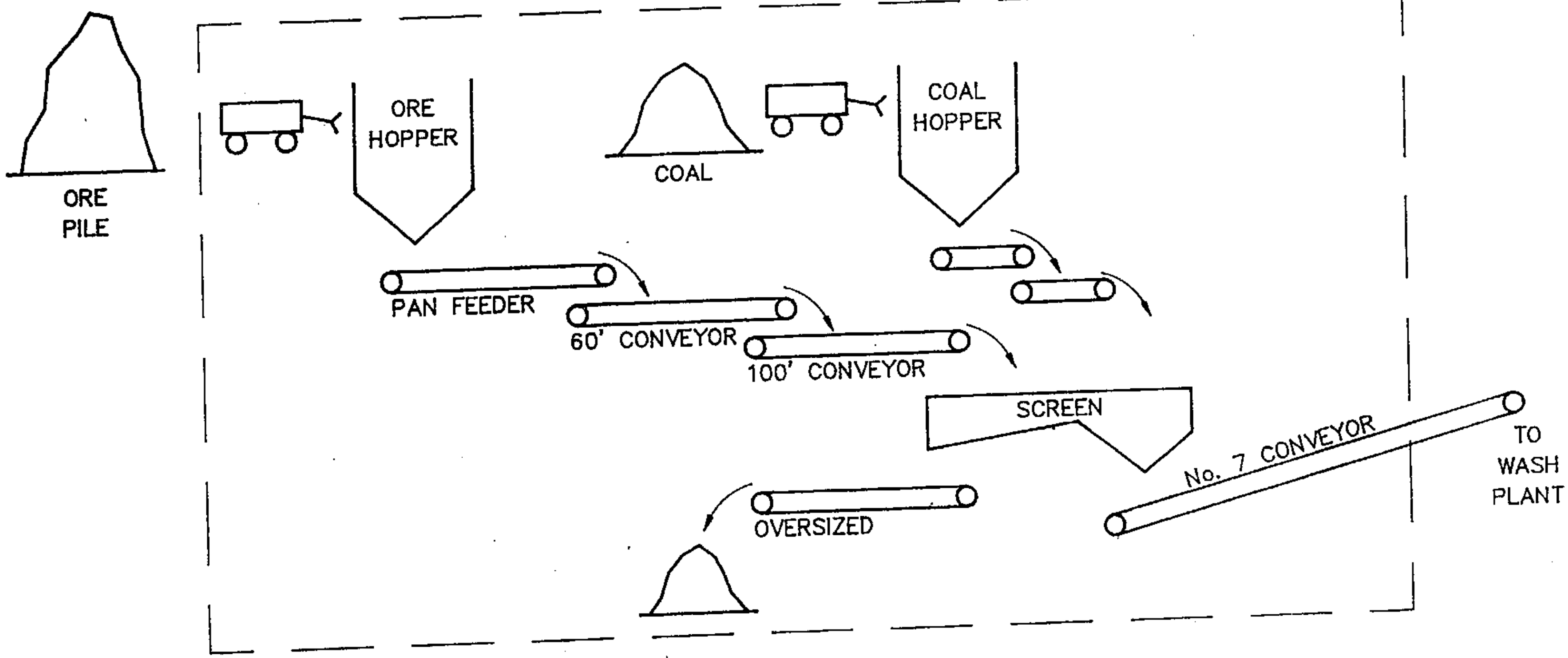
* See Emissions Reference Unit Pollutant Estimation ER-2

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM—10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE — 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR — IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

F–Ob–1



NU–WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

ORE STORAGE TO WASH PLANT

<u>Emissions Reference Unit Pollutant Estimation</u>

ER-3

Source: S-W-1

Wash Plant

The Wash Plant and associated equipment is a **wet** beneficiation process and has no significant emissions. The Wash Plant is "campaigned" (run approximately one-half of each month) and there is one (1) drop point outside the building where washed (beneficiated) ore is stockpiled. The estimated emissions from this drop point will be calculated with the "#4 Calciner Feed".

SECTION 3: PROCESS AND MANUFACTURING OPERATIONS

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	ER-3, S-W-1, Wash Plant
STACK DESCRIPTION	NA
BUILDING DESCRIPTION	Dryer, Wash Plant, N. Calciner Bldg.

MANUFACTURER		MODEL		DATE INSTALLED OR LAST MODIFIED	

PROCESSING DATA * See Emissions Reference Unit Pollutant Estimation ER-3

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	ACTUAL ANNUAL RATE	UNITS
INPUT					
PRODUCT OUTPUT					
WASTE OUTPUT					
RECYCLE					

POTENTIAL HAPS IN PROCESSING STREAMS

HAPS DESCRIPTION	HAP CAS NUMBER	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLE STREAM BY WEIGHT

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

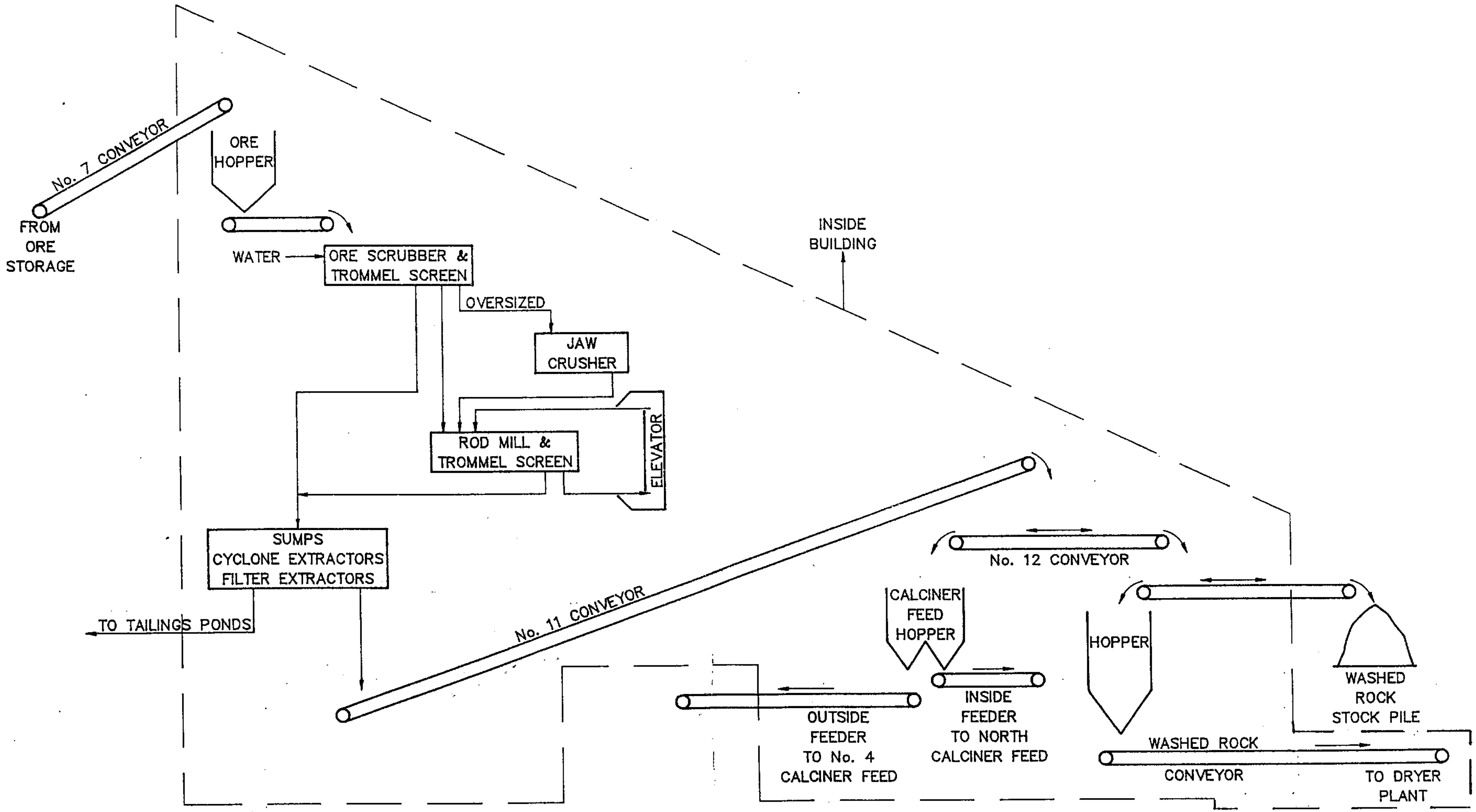
AIR POLLUTANT EMISSIONS

* See Emissions Reference Unit Pollutant Estimation ER-3

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.



NU–WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

WASH PLANT

Emissions Reference Unit Pollutant Estimation

ER-4

Source: S-D-1

Dryer Plant

The Dryer is operated when increased tonnage is required to the calciners. Estimation of the actual emissions from the exhaust stack of the Dryer Plant is based on most recent operation history and most recent source test data.

All combustion gases from the air heater and exhaust gases from the Dryer product collection cyclones exit through the wet scrubber and exhaust stack. There are two (2) small wet scrubbers used to collect fugitive dust from dried ore transfer points, which exhaust outside the building. The emissions from these two wet scrubbers is considered insignificant to the process.

Dryer Operation

April 1991	450 tons fed	16 operating hours
May 1991	3937 tons fed	70 operating hours
January 1995	3644 tons fed	53 operating hours

8031 total tons fed 1991/1995
139 total operating hours 1991/1995

8031 tons/139 hours = 57.8 tph fed (mean)

57.8 tph * 2000 lb/ton = 115,554 lbs/hr = PWR

$1.12(PWR)^{0.27} = 1.12(115{,}554)^{0.27} = 26.07$ lbs PM/hr

The most recent stack test of the Dryer plant showed PM emissions at 70% of allowable standard by process weight rate. Estimated actual PM emissions from the Dryer using most recent operating data and most recent source test data are as follows:

26.07 lbs PM/hr * 70% = 18.25 lbs PM/hr

In addition to the above emissions, Fluoride emissions from the Dryer are set by Permit 13-0420-0003-01 at 1.5 lbs/hr. The most recent source test of the dryer showed fluoride emissions at 39% of allowable standard:

1.5 lbs/hr * 39% = 0.59 lbs F^- /hr

All equipment associated with the Dryer process is housed inside a building. As stated in IDAPA 16.01.01.317.01 defining "Insignificant Activities", emissions from building ventilation are insignificant. See Section 317.01(a)(i)(9).

Data used from calendar year 1991 or 1995 and stack testing data are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 2: FUEL BURNING EQUIPMENT

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-4, S-D-1, Dryer Plant

STACK DESCRIPTION: P-D-1

BUILDING DESCRIPTION: Dryer, Wash Plant, N. Calciner Bldg.

MANUFACTURER: Peabody/Dorr Oliver   MODEL: DATE INSTALLED OR LAST MODIFIED:

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

MILLION BTU/HR: 39.6   1000 LBS STEAM/HR: kW: hP:

BURNER TYPE (SEE NOTE BELOW): 11   PERCENT USED FOR PROCESS: 100

PERCENT USED FOR SPACE HEAT:

FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (SEE NOTE BELOW)	01			
PERCENT SULFUR				
PERCENT ASH				
PERCENT NITROGEN				
PERCENT CARBON				
PERCENT HYDROGEN				
PERCENT MOISTURE				
HEAT CONTENT (BTU/UNIT)				
MAXIMUM HOURLY COMBUSTION RATE (UNITS/HR)				
NORMAL ANNUAL COMBUSTION RATE (UNITS/YR)				

NOTES: BURNER TYPE – 01) SPREADER STOKER; 02) CHAIN OR TRAVELING GRATE; 03) HAND FIRED; 04) CYCLONE FURNACE;

05) WET BOTTOM (PULVERIZED COAL); 06) DRY BOTTOM (PULVERIZED COAL);

07) UNDERFEED STOKER; 08) TANGENTIALLY FIRED; 09) HORIZONTALLY FIRED; 10) AXIALLY FIRED;

11) OTHER (SPECIFY) Ring Gas Burner

FUEL CODES – 01) NATURAL GAS; 02) #1 OR #2 FUEL OIL; 03) #4 FUEL OIL; 04) #5 OR #6 FUEL OIL; 05) USED OIL

06) WOOD CHIPS; 07) WOOD BARK; 08) WOOD SHAVINGS; 09) SANDER DUST;

10) SUBBITUMINOUS COAL; 11) BITUMINOUS COAL; 12) ANTHRACITE COAL; 13) LIGNITE COAL

14) PROPANE; 15) OTHER (SPECIFY)

SECTION 2, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC – FEB	
MAR – MAY	
JUN – AUG	
SEP – NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

* See Section 3, Part B.

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM – 10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE
EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

SECTION 3: PROCESS AND MANUFACTURING OPERATIONS

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-4, S-D-1, Dryer Plant

STACK DESCRIPTION: P-D-1

BUILDING DESCRIPTION: Dryer, Wash Plant, N. Calciner Bldg.

MANUFACTURER: Dorr Oliver

MODEL: 6053.F

DATE INSTALLED OR LAST MODIFIED: 1967

PROCESSING DATA

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	ACTUAL ANNUAL RATE	UNITS
INPUT	Washed Ore	60	57.8	8031	tons
PRODUCT OUTPUT	Dried Ore	54	52	7228	tons
WASTE OUTPUT					
RECYCLE					

POTENTIAL HAPS IN PROCESSING STREAMS

HAPS DESCRIPTION	HAP CAS NUMBER	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLE STREAM BY WEIGHT

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER		OPERATING SCHEDULE	
DEC—FEB		HOURS/DAY	
MAR—MAY		DAYS/WEEK	
JUN—AUG		WEEKS/YEAR	
SEP—NOV			

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-D-1a	A-D-1b
TYPE CODE (FROM APP. A)	076	052
MANUFACTURER	Buell	ARCo
MODEL NUMBER		WM-595
PRESSURE DROP (IN. OF WATER)		4
WET SCRUBBER FLOW (GPM)		300
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

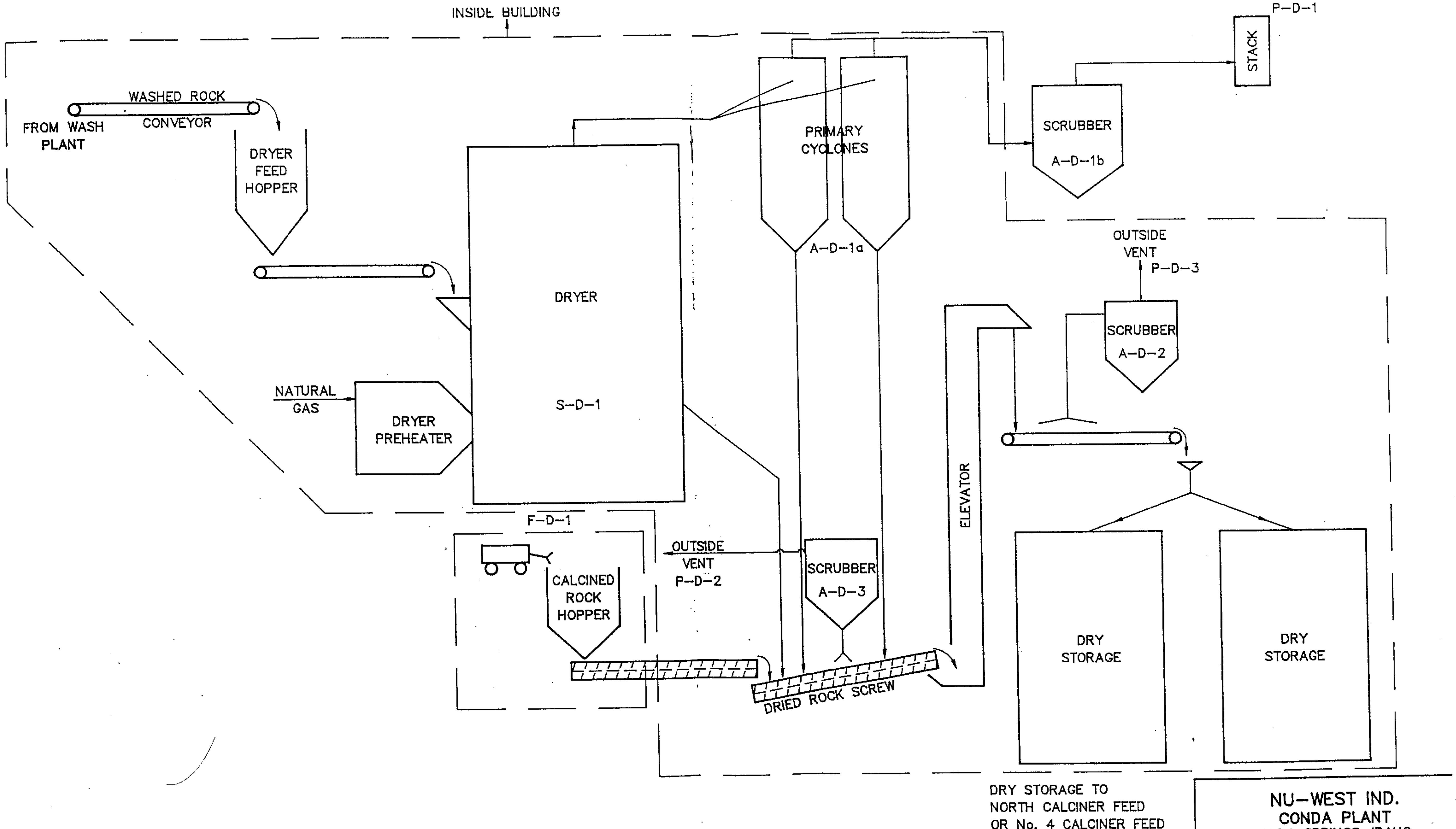
GROUND ELEVATION (FT)	6155
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	59
STACK EXIT DIAMETER (FT)	5.5
STACK EXIT GAS FLOWRATE (ACFM)	51300
STACK EXIT TEMPERATURE (DEG. F)	128

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	REFERENCE
PM							
PM—10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.



NU-WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

DRYER PLANT

Emissions Reference Unit Pollutant Estimation

ER-5

Source: S-Cb-1

North Calciner

The North Calciner can be operated when the #4 Calciner is not in operation or can be operated as a stand-alone unit. The estimated actual emissions from the North Calciner is based on most recent operation history and from recent source test data:

April 1991	9,540 tons fed	156 operating hours
May 1991	38,505 tons fed	1,081 operating hours
January 1995	18,218 tons fed	188 operating hours

$\frac{1081 \text{ HR}}{24 \text{ HR/day}} = 45 \text{ days}$

4/91

5/91 1081 HRS (in 1 month?)

This looks like a typo

66,263 total tons fed 1991/1995
1,425 total operating hours 1991/1995

66,263 tons/1,425 hours = 46.5 tph fed (mean)

46.5 tph * 2000 lb/ton = 93,000 lbs/hr = PWR

$1.12(\text{PWR})^{0.27} = 1.12(93{,}000)^{0.27} = 24.59$ lbs PM/hr

The most recent stack test of the North Calciner showed PM emissions at 50% of allowable standard by process weight rate. Estimated actual PM emissions from the North Calciner using most recent operating data and most recent source test data are as follows:

24.59 lbs PM/hr * 50% = 12.30 lbs PM/hr

AP-42 provides a "D"rated emission factor[a] for SO_2 emissions from a calciner in Table 11.21-2. Estimated actual SO_2 emissions from the North Calciner, using recent operating data, based on the AP-42 emission factor is as follows:

0.0069[a] lbs SO_2/tons total feed * 66,236 tons feed/1425 hours = 0.32 lbs SO_2/hr

In addition to the above emissions, Fluoride emissions from the North Calciner are set by Permit13-0420-0003-02 at 1.5 lbs/hr. The most recent source test of the North Calciner showed fluoride emissions at 33% of allowable standard:

1.5 lbs/hr * 33% = 0.50 lbs F^- /hr

Data used from calendar year 1991 or 1995 and stack testing data are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

ECTION 2: FUEL BURNING EQUIPMENT

EQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
Q BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

ART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-5, S-Cb-1, North Calciner

ACK DESCRIPTION: P-Cb-1

BUILDING DESCRIPTION: Dryer, Wash Plant, N. Calciner Bldg.

NUFACTURER: Dorr Oliver MODEL: DATE INSTALLED OR LAST MODIFIED: 1967

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

LION BTU/HR: 60 1000 LBS STEAM/HR: kW: hP:

BURNER TYPE (SEE NOTE BELOW): 11 PERCENT USED FOR PROCESS: 100

PERCENT USED FOR SPACE HEAT:

FUEL DATA

AMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
UEL CODE (SEE NOTE BELOW)	01		10	
CENT SULFUR				
ERCENT ASH				
CENT NITROGEN				
ERCENT CARBON				
ENT HYDROGEN				
ERCENT MOISTURE				
CONTENT (BTU/UNIT)				
UM HOURLY BUSTION RATE (UNITS/HR)				
ORMAL ANNUAL COMBUSTION RATE (UNITS/YR)				

: BURNER TYPE -- 01) SPREADER STOKER; 02) CHAIN OR TRAVELING GRATE; 03) HAND FIRED; 04) CYCLONE FURNACE;

05) WET BOTTOM (PULVERIZED COAL); 06) DRY BOTTOM (PULVERIZED COAL);

07) UNDERFEED STOKER; 08) TANGENTIALLY FIRED; 09) HORIZONTALLY FIRED; 10) AXIALLY FIRED;

11) OTHER (SPECIFY) Bed Fuel Injection System

FUEL CODES -- 01) NATURAL GAS; 02) #1 OR #2 FUEL OIL; 03) #4 FUEL OIL; 04) #5 OR #6 FUEL OIL; 05) USED OIL

06) WOOD CHIPS; 07) WOOD BARK; 08) WOOD SHAVINGS; 09) SANDER DUST;

10) SUBBITUMINOUS COAL; 11) BITUMINOUS COAL; 12) ANTHRACITE COAL; 13) LIGNITE COAL

14) PROPANE; 15) OTHER (SPECIFY)

SECTION 2, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC – FEB	
MAR – MAY	
JUN – AUG	
SEP – NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

* See Section 3, Part B

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM-10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

SECTION 3: PROCESS AND MANUFACTURING OPERATIONS

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-5, S-Cb-1, North Calciner

STACK DESCRIPTION: P-Cb-1

BUILDING DESCRIPTION: Dryer, Wash Plant, N. Calciner Bldg.

MANUFACTURER: Dorr Oliver

MODEL:

DATE INSTALLED OR LAST MODIFIED: 1967

PROCESSING DATA

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	ACTUAL ANNUAL RATE	UNITS
INPUT	Phosphate Ore	150	97		tons
PRODUCT OUTPUT	Calcined Ore	130	84		ton
WASTE OUTPUT					
RECYCLE					

POTENTIAL HAPS IN PROCESSING STREAMS

HAPS DESCRIPTION	HAP CAS NUMBER	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLE STREAM BY WEIGHT

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC-FEB	
MAR-MAY	
JUN-AUG	
SEP-NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-Cb-1a	A-Cb-1b
TYPE CODE (FROM APP. A)	076	076
MANUFACTURER	Buell	Buell
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)	5.7	5.7
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	6155
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	115
STACK EXIT DIAMETER (FT)	5.5
STACK EXIT GAS FLOWRATE (ACFM)	66000
STACK EXIT TEMPERATURE (DEG. F)	145

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM-10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER	
DEC—FEB	
MAR—MAY	
JUN—AUG	
SEP—NOV	

OPERATING SCHEDULE	
HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY 2x 3°	SECONDARY
TYPE	A-Cb-1c	
TYPE CODE (FROM APP. A)	053	
MANUFACTURER	ARCo	
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)	12	
WET SCRUBBER FLOW (GPM)	400-700 @ 2.5 psig	
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM—10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE — 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR — IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

SECTION 3: PROCESS AND MANUFACTURING OPERATIONS

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	ER-5, S-Cb-2, N Calciner Aftercooler
STACK DESCRIPTION	P-Cb-1
BUILDING DESCRIPTION	Dryer, Wash Plant, N. Calciner Bldg.

MANUFACTURER	Dorr Oliver	MODEL		DATE INSTALLED OR LAST MODIFIED	1967

PROCESSING DATA * Integral equipment to S-Cb-1 (N. Cal.) process

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	ACTUAL ANNUAL RATE	UNITS
INPUT					
PRODUCT OUTPUT					
WASTE OUTPUT					
RECYCLE					

POTENTIAL HAPS IN PROCESSING STREAMS

HAPS DESCRIPTION	HAP CAS NUMBER	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLE STREAM BY WEIGHT

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER		OPERATING SCHEDULE	
DEC–FEB		HOURS/DAY	
MAR–MAY		DAYS/WEEK	
JUN–AUG		WEEKS/YEAR	
SEP–NOV			

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-Cb-2a	A-Cb-2b
TYPE CODE (FROM APP. A)		
MANUFACTURER	Dorr Oliver/Buell	Croll Renolds
MODEL NUMBER		Mo. 12X12X48
PRESSURE DROP (IN. OF WATER)	3.5	
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

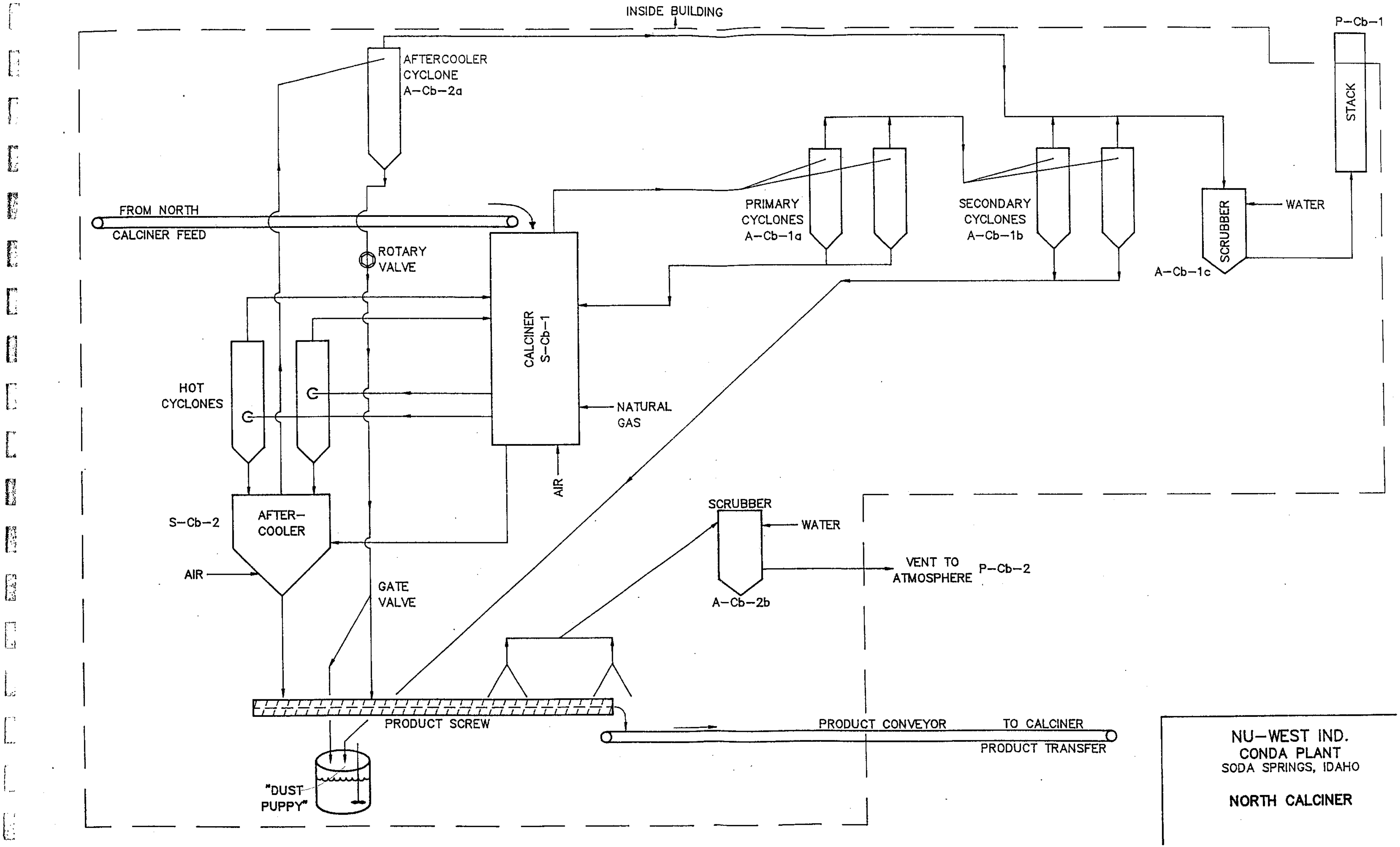
GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.


INSIDE BUILDING
P-Cb-1
STACK
AFTERCOOLER
CYCLONE
A-Cb-2a
PRIMARY
CYCLONES
A-Cb-1a
SECONDARY
CYCLONES
A-Cb-1b
SCRUBBER
WATER
A-Cb-1c
FROM NORTH
CALCINER FEED
ROTARY
VALVE
CALCINER
S-Cb-1
NATURAL
GAS
AIR
HOT
CYCLONES
S-Cb-2
AFTER-
COOLER
AIR
GATE
VALVE
SCRUBBER
WATER
VENT TO
ATMOSPHERE
P-Cb-2
A-Cb-2b
PRODUCT SCREW
"DUST
PUPPY"
PRODUCT CONVEYOR
TO CALCINER
PRODUCT TRANSFER
NU-WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO
NORTH CALCINER

Does this acco
for Coal input
to the calciner a
(See ER-7, Calciner F

Emissions Reference Unit Pollutant Estimation

ER-6

Source: S-Ca-1

#4 Calciner

The #4 Calciner is presently the principal means of calcining phosphate ore at the facility. Estimated actual emissions from the #4 Calciner are based on #4 Calciner operating data for FY ending June 1994 and most recent source test data.

1,072,174 tons fed to the #4 Calciner/8316 operating hrs * 2000 lbs/ton = 257,858 lbs/hr = PWR

$1.12(257,858)^{0.27}$ = 32.38 lbs PM/hr

The most recent source test of the #4 Calciner showed PM emissions at 50% of allowable standard by process weight rate. Estimated actual PM emissions from the #4 Calciner using FY 1994 data and most recent source test data are as follows:

32.38 lbs PM/hr * 60% = 19.43 lbs PM/hr

AP-42 provides a "D"rated emission factor[a] for SO_2 emissions from a calciner in Table 11.21-2. Estimated actual SO_2 emissions from #4 Calciner based on the AP-42 emission factor is as follows:

0.0069[a] lbs SO_2/tons total feed * 1,072,174 tons feed/8316 hours = 0.89 lbs SO_2/hr

In addition to the above emissions, Fluoride emissions from the #4 Calciner are set by Permit13-0420-0003-15 at 1.5 lbs/hr. The most recent source test of the #4 Calciner showed fluoride emissions at 32% of allowable standard:

1.5 lbs/hr * 32% = 0.48 lbs F^- /hr

All equipment associated with the #4 Calciner is housed inside a building. As stated in IDAPA 16.01.01.317.01 defining "Insignificant Activities", emissions from building ventilation are insignificant. See Section 317.01(a)(i)(9).

Data used from calendar year 1994 or fiscal year 1994 and stack testing data are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 2: FUEL BURNING EQUIPMENT

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-6, S-Ca-1, #4 Calciner

STACK DESCRIPTION: P-Ca-1/2

BUILDING DESCRIPTION: #4 Calciner

MANUFACTURER: Dorr Oliver   MODEL: ____   DATE INSTALLED OR LAST MODIFIED: 1975

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

MILLION BTU/HR: 60   1000 LBS STEAM/HR: ____   kW: ____   hP: ____

BURNER TYPE (SEE NOTE BELOW): 11   PERCENT USED FOR PROCESS: 100

PERCENT USED FOR SPACE HEAT: ____

FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (SEE NOTE BELOW)	01		10	
PERCENT SULFUR				
PERCENT ASH				
PERCENT NITROGEN				
PERCENT CARBON				
PERCENT HYDROGEN				
PERCENT MOISTURE				
HEAT CONTENT (BTU/UNIT)				
MAXIMUM HOURLY COMBUSTION RATE (UNITS/HR)				
NORMAL ANNUAL COMBUSTION RATE (UNITS/YR)				

NOTES: BURNER TYPE — 01) SPREADER STOKER; 02) CHAIN OR TRAVELING GRATE; 03) HAND FIRED; 04) CYCLONE FURNACE;
05) WET BOTTOM (PULVERIZED COAL); 06) DRY BOTTOM (PULVERIZED COAL);
07) UNDERFEED STOKER; 08) TANGENTIALLY FIRED; 09) HORIZONTALLY FIRED; 10) AXIALLY FIRED;
11) OTHER (SPECIFY) Bed Fuel Injection System

FUEL CODES — 01) NATURAL GAS; 02) #1 OR #2 FUEL OIL; 03) #4 FUEL OIL; 04) #5 OR #6 FUEL OIL; 05) USED OIL
06) WOOD CHIPS; 07) WOOD BARK; 08) WOOD SHAVINGS; 09) SANDER DUST;
10) SUBBITUMINOUS COAL; 11) BITUMINOUS COAL; 12) ANTHRACITE COAL; 13) LIGNITE COAL
14) PROPANE; 15) OTHER (SPECIFY) ____

SECTION 2, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC—FEB	
MAR—MAY	
JUN—AUG	
SEP—NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

* See Section 3, Part B

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM—10							
SO_2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE — 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR — IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

SECTION 3: PROCESS AND MANUFACTURING OPERATIONS

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	ER-6, S-Ca-1, #4 Calciner
STACK DESCRIPTION	P-Ca-1/2
BUILDING DESCRIPTION	#4 Calciner

MANUFACTURER	Dorr Oliver	MODEL		DATE INSTALLED OR LAST MODIFIED	1975

PROCESSING DATA

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	ACTUAL ANNUAL RATE	UNITS
INPUT	Washed Ore	165	147		tons
PRODUCT OUTPUT	Calcined Ore	126	112		tons
WASTE OUTPUT					
RECYCLE					

POTENTIAL HAPS IN PROCESSING STREAMS

HAPS DESCRIPTION	HAP CAS NUMBER	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLE STREAM BY WEIGHT

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER	
DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE	
HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-Ca-1a	A-Ca-1b
TYPE CODE (FROM APP. A)	076	076
MANUFACTURER	Ducon	Ducon
MODEL NUMBER	2-820	2-820
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	6163
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	145
STACK EXIT DIAMETER (FT)	8.5
STACK EXIT GAS FLOWRATE (ACFM)	87000
STACK EXIT TEMPERATURE (DEG. F)	158

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-Ca-1c	
TYPE CODE (FROM APP. A)	053	
MANUFACTURER	Ducon	
MODEL NUMBER	62/150 VVO	
PRESSURE DROP (IN. OF WATER)	25	
WET SCRUBBER FLOW (GPM)	800	
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE
EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

SECTION 3: PROCESS AND MANUFACTURING OPERATIONS

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	ER-6, S-Ca-2, #4 Calciner Aftercooler
STACK DESCRIPTION	P-Ca-1/2
BUILDING DESCRIPTION	#4 Calciner

MANUFACTURER	Dorr Oliver	MODEL		DATE INSTALLED OR LAST MODIFIED	1975

PROCESSING DATA * Integral equipment to #4 Calciner, See Section 3, S-Ca-1

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	ACTUAL ANNUAL RATE	UNITS
INPUT					
PRODUCT OUTPUT					
WASTE OUTPUT					
RECYCLE					

POTENTIAL HAPS IN PROCESSING STREAMS

HAPS DESCRIPTION	HAP CAS NUMBER	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLE STREAM BY WEIGHT

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-Ca-2a	A-Ca-2b
TYPE CODE (FROM APP. A)	075	053
MANUFACTURER		Ducon
MODEL NUMBER		44/102
PRESSURE DROP (IN. OF WATER)		25
WET SCRUBBER FLOW (GPM)		350
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

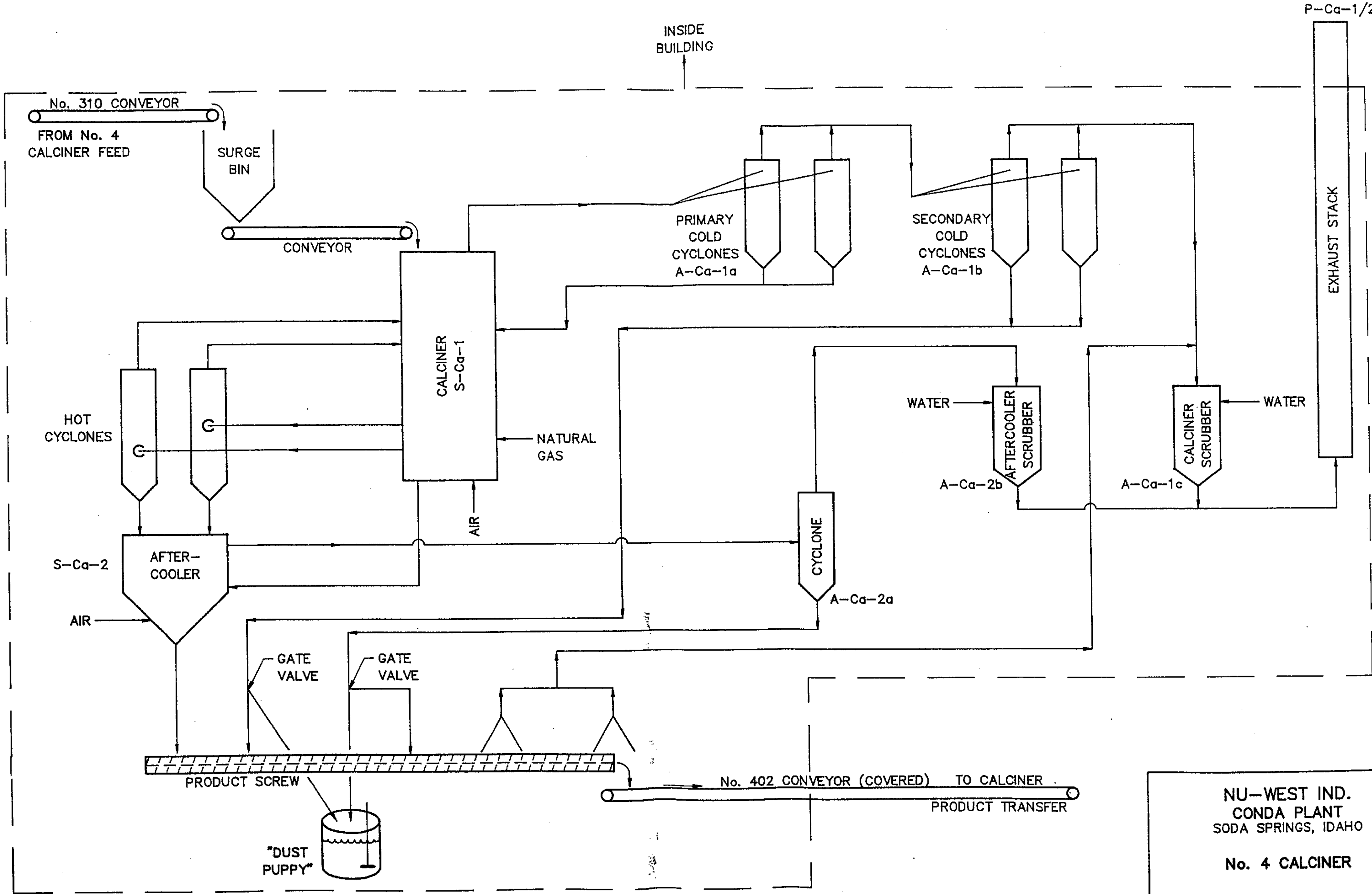
GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.



NU-WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

No. 4 CALCINER

Emissions Reference Unit Pollutant Estimation

ER-7

Source: F-Oc-1

#4 Calciner Feed

Air pollutant emissions estimations from the #4 Calciner Feed system are addressed much the same as in ER-1.

For lack of a better method to estimate air pollutant emissions from phosphate ore transfer from the Wash Plant storage into the #4 Calciner, the following exercise uses the emission estimation factor found in AP-42, Supplement B, 11.2.3.3 ("Aggregate Handling and Storage Piles") to estimate emissions from each point where there is a "drop" operation.

$E = k(0.0032)\ [(U/5)^{1.3} / (M/2)^{1.4}]$ (lb/ton)

Where: E = emission factor (lb/ton)
k. = particle size multiplier (found in table 11.2.3-2.)
U = mean wind speed (mph)
M = material moisture content (%)

The wased phosphate ore transfered from the storage piles into the #4 Calciner typically contains 11% to 13% natural moisture; M = 12
Wind speed measurements taken at the facility from 1992 through January 1995 show U = 3.0
For the purpose of this exercise, the "worst-case" particle size multiplier will be used; k = 0.74

$E = 0.74(0.0032)\ [(3.0/5)^{1.3} / (12/2)^{1.4}]$ (lb/ton) = 0.0001 lbs/ton

1,072,150 tons of ore was fed to the #4 Calciner in FY 1994 in 8316 operating hours. The diagram labeled "No. 4 Calciner Feed" illustrates the general layout of washed ore transfer from the washed rock stockpile or directly from the Wash Plant into the #4 Calciner. Washed ore is only transfered by one (1) of these methods at a time. Not more than a total of seven (7) "unenclosed" "drop" points may occur while transfering washed ore into the #4 Calciner. The following calculation estimates the emissions from washed ore transfer into the #4 Calciner at the facility:

0.0001 lb/ton * 1,072,150 tons/8316 hr * 7 = 0.09 lbs/hr

There is one (1) drop point in the conveying system for run-of-mine coal transfer into the #4 Calciner which is not accounted for previously. The mean quantity of coal used in one year is approximately 15,200 tons. Moisture content of the coal is quoted from the suppier at 19.1%.

$E = 0.74(0.0032)\ [(3.0/5)^{1.3} / (19.1/2)^{1.4}]$ lb/ton = 0.0000517 lbs/ton

0.0000517 lb/ton * 15,200 tons/8316 hrs * 1 = 0.00009 lbs/hr

Data used from calendar year 1994 or fiscal year 1994 are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 7: SOLID MATERIAL TRANSPORT, HANDLING, AND STORAGE

DEQ USE ONLY

DEQ PLANT ID CODE:
DEQ PROCESS CODE:
DEQ STACK ID CODE:
DEQ BUILDING ID CODE:
PRIMARY SCC:
SECONDARY SCC:
DEQ SEGMENT CODE:

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-7, F-Oc-1, #4 Calciner Feed
STACK DESCRIPTION: NA
BUILDING DESCRIPTION: North end of Facility
DATE INSTALLED OR LAST MODIFIED:
MATERIAL DESCRIPTION: Washed ore and coal

MATERIAL TRANSFER RATES

MAXIMUM HOURLY TRANSFER RATE (UNITS/HOUR): 165
NORMAL HOULRY TRANSFER RATE (UNITS/HOUR): 147
NORMAL ANNUAL TRANFER RATE (UNITS/YEAR): 1 MM
UNITS OF MEASURE: tons

BELT CONVEYOR/VEHICLE TRANSFER

NUMBER OF TRANSFERS: 7
MATERIAL MOISTURE CONTENT (WEIGHT PERCENT): 12
MAXIMUM HOURLY WIND SPEED (MPH):
AVERAGE HOURLY WIND SPEED (MPH): 3

CONVEYORS ENCLOSED? (Y/N): Y/N (Y marked)
CONVEYORS IN BUILDINGS? (Y/N): Y/N (Y marked)
TRANSFERS ENCLOSED? (Y/N): Y/N (Y marked)
TRANSFERS IN BUILDINGS? (Y/N): Y/N (Y marked)

PNEUMATIC CONVEYOR TRANSFERS

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT):
PRIMARY SEPARATOR TYPE:
PRIMARY SEPARATOR PERCENT EFFICIENCY:
SECONDARY SEPARATOR TYPE:
SECONDARY SEPARATOR PERCENT EFFICIENCY:

MATERIAL STORAGE DATA

* See Secion 7, ER-22, F-Op-1 (Fugitive Dust from ore piles)

PILE? (Y/N):
STORAGE CAPACITY:
PILE LENGTH (FT):
SILO? (Y/N):
STORAGE CAPACITY UNITS:
PILE WIDTH (FT):
OTHER STORAGE TYPE DESCRIPTION:
PILE HEIGHT (FT):

MATERIAL DATA

HAP DESCRIPTION	HAP CAS NUMBER	HAP FRACTION IN MATERIAL BY WEIGHT

SECTION 7, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC—FEB	
MAR—MAY	
JUN—AUG	
SEP—NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

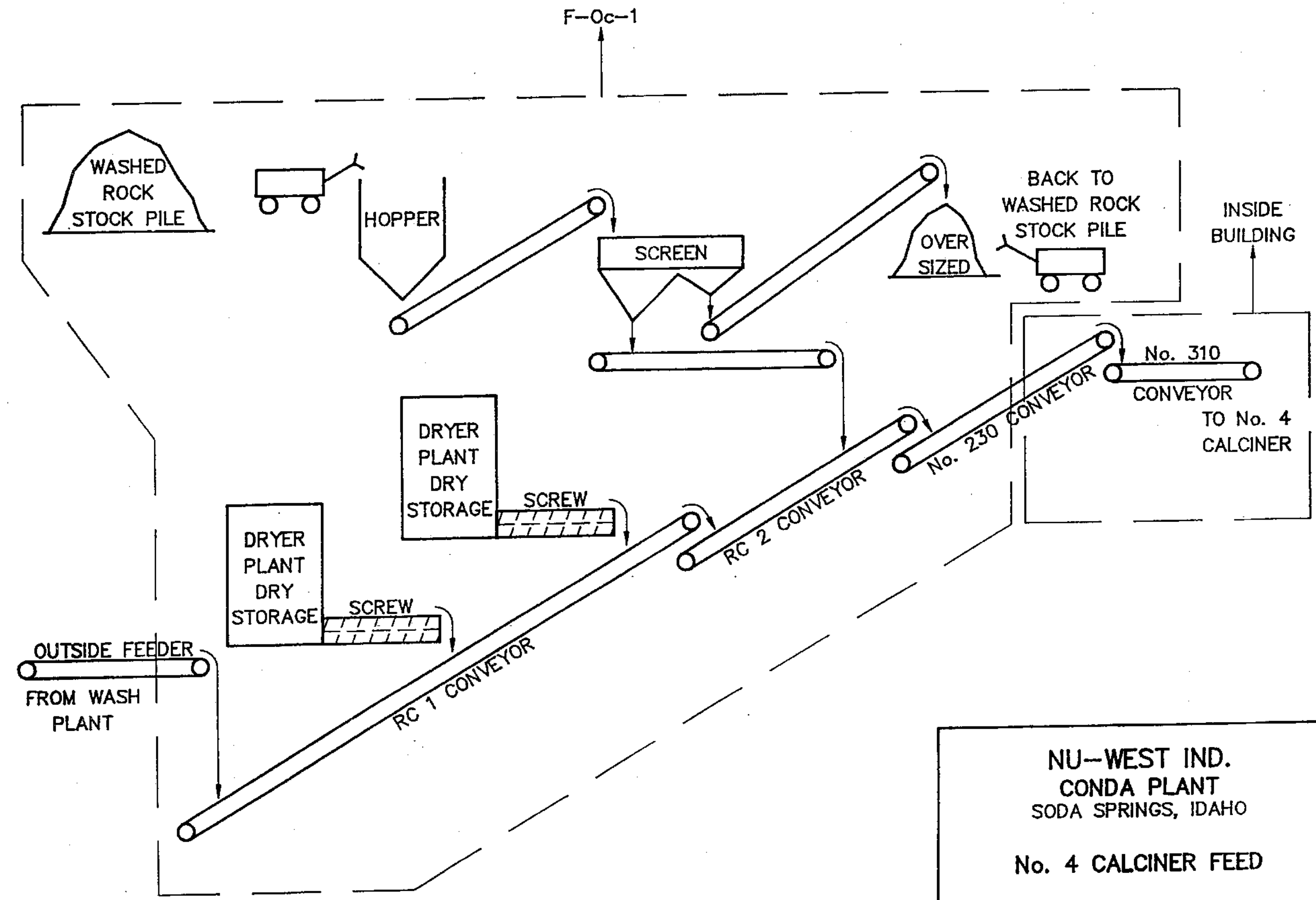
GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	(TONS/YR)	REFERENCE
PM							
PM—10							
SO2							
CO							
NOx							
VOC							
LEAD							

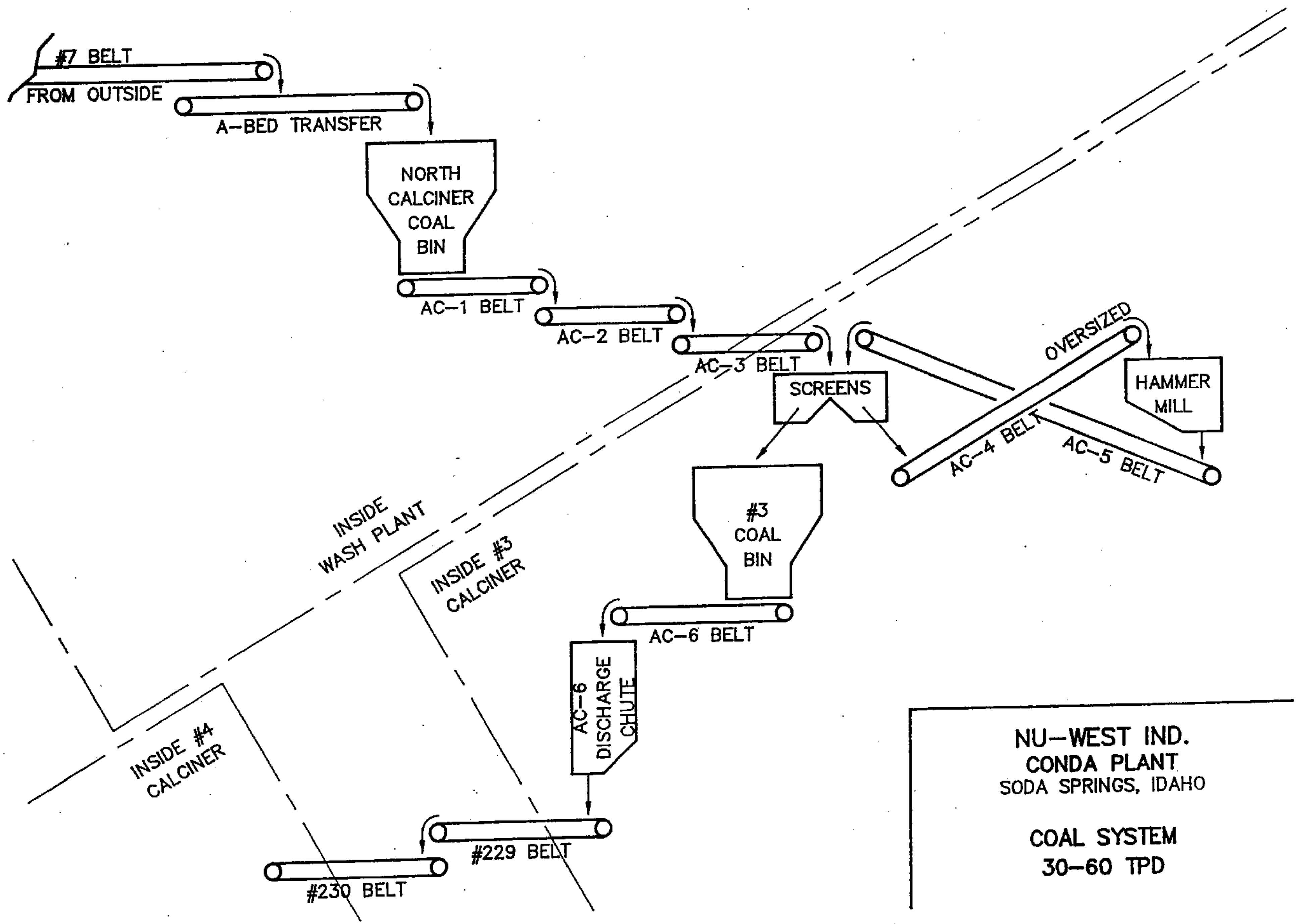
NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.



NU--WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

No. 4 CALCINER FEED



NU-WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

COAL SYSTEM
30-60 TPD

Emissions Reference Unit Pollutant Estimation

ER-8

Source: F-Oc-2

North Calciner Feed

The washed ore and dried ore feed systems to the North Calciner are all contained within the Wash Plant/North Calciner/Dryer building (one building houses all three plants). As stated in IDAPA 16.01.01.317.01 defining "Insignificant Activities", emissions from building ventilation are insignificant. See Section 317.01(a)(i)(9).

Data used from calendar year 1994 or fiscal year 1994 are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 7: SOLID MATERIAL TRANSPORT, HANDLING, AND STORAGE

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-8, F-Oc-2, North Calciner Feed

STACK DESCRIPTION: NA

BUILDING DESCRIPTION: Dryer, Wash Plant, N. Calciner Bldg.

DATE INSTALLED OR LAST MODIFIED:

MATERIAL DESCRIPTION: Washed ore and coal

MATERIAL TRANSFER RATES

MAXIMUM HOURLY TRANSFER RATE (UNITS/HOUR): 150

NORMAL HOURLY TRANSFER RATE (UNITS/HOUR): 97

NORMAL ANNUAL TRANFER RATE (UNITS/YEAR):

UNITS OF MEASURE: tons

BELT CONVEYOR/VEHICLE TRANSFER * See Emissions Reference Unit Pollutant Estimation ER-8

NUMBER OF TRANSFERS:

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT):

MAXIMUM HOURLY WIND SPEED (MPH):

AVERAGE HOURLY WIND SPEED (MPH):

CONVEYORS ENCLOSED? (Y/N)

CONVEYORS IN BUILDINGS? (Y/N)

TRANSFERS ENCLOSED? (Y/N)

TRANSFERS IN BUILDINGS? (Y/N)

PNEUMATIC CONVEYOR TRANSFERS

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT):

PRIMARY SEPARATOR TYPE:

PRIMARY SEPARATOR PERCENT EFFICIENCY:

SECONDARY SEPARATOR TYPE:

SECONDARY SEPARATOR PERCENT EFFICIENCY:

MATERIAL STORAGE DATA

PILE? (Y/N)

STORAGE CAPACITY:

PILE LENGTH (FT):

SILO? (Y/N)

STORAGE CAPACITY UNITS:

PILE WIDTH (FT):

OTHER STORAGE TYPE DESCRIPTION:

PILE HEIGHT (FT):

MATERIAL DATA

HAP DESCRIPTION	HAP CAS NUMBER	HAP FRACTION IN MATERIAL BY WEIGHT

SECTION 7, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

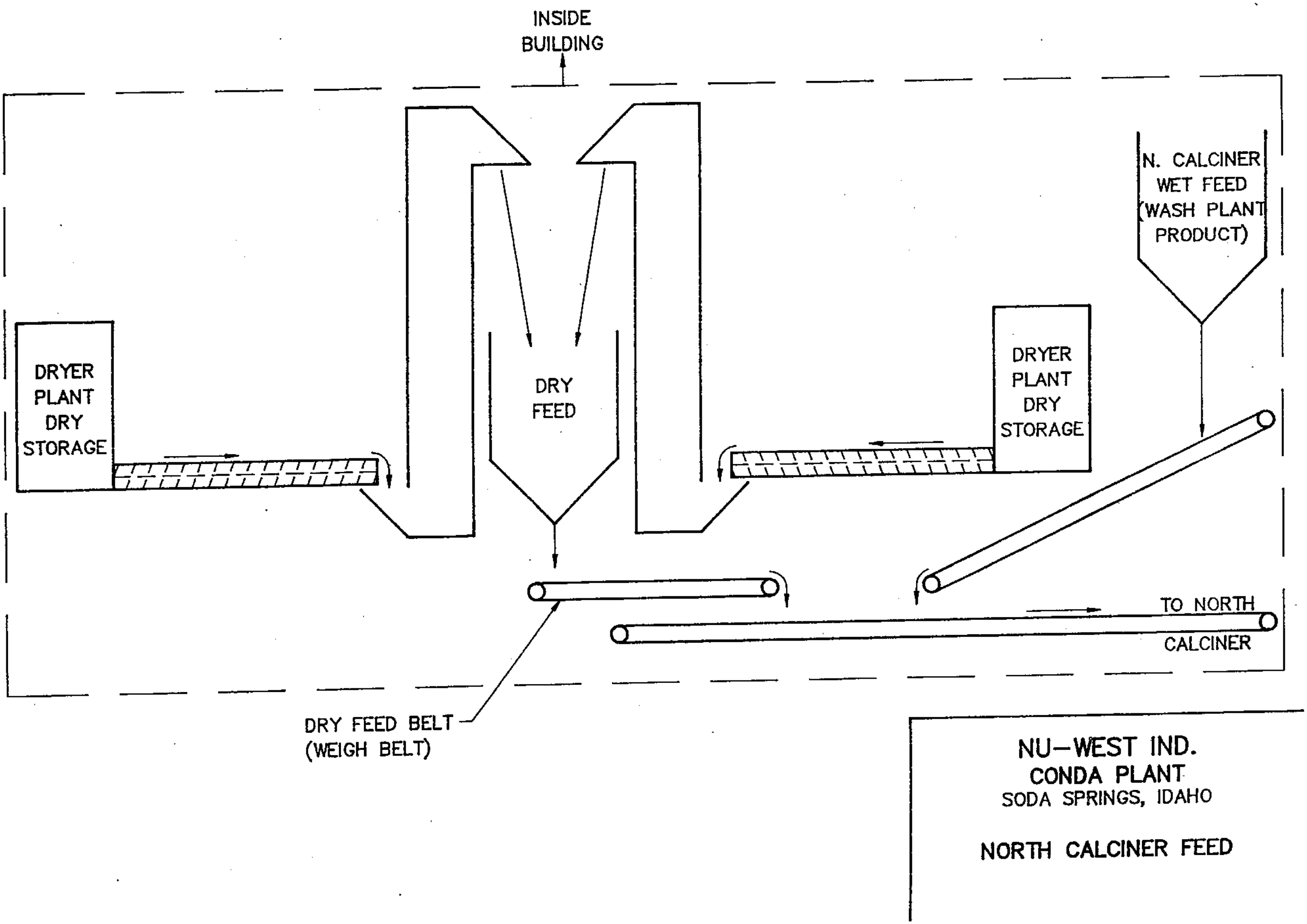
STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO_2							
CO							
NO_x							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE
EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.


INSIDE BUILDING
DRYER PLANT DRY STORAGE
DRY FEED
DRYER PLANT DRY STORAGE
N. CALCINER WET FEED (WASH PLANT PRODUCT)
TO NORTH CALCINER
DRY FEED BELT (WEIGH BELT)
NU-WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO
NORTH CALCINER FEED

<u>Emissions Reference Unit Pollutant Estimation</u>

ER-9

Source: F-Cc-1

Calciner Product Transfer

The calciner product transfer system utilizes covered conveyor belts and all transfer points ("drop" points) from one enclosed conveyor to another are enclosed and evacuated to baghouses.

AP-42 addresses the difficulty in estimating emissions from these systems in the discussion at 11.21.2:

"Emissions from material handling systems are difficult to quantify because of several different systems used to convey rock. Moreover, a large part of the emission potential for these operations is fugitives. Conveyor belts moving dried rock are usually covered and sometimes enclosed. Transfer points are sometimes hooded and evacuated. Bucket elevators are usually enclosed and evacuated to a control device, and ground rock is generally conveyed in totally enclosed systems with well defined and easily controlled discharge points. Dry rock is normally stored in bins or silos, which are vented to the atmosphere, with fabric filters frequently used to control emissions."

There have been no tests conducted at the facility to estimate PM emissions from the calciner product transfer system, nor the accompanying baghouses. The facility operates and maintains the transfer system and baghouses on a "visual emissions" basis only.

AP-42, Table 11.21-4 shows an "E" rating <u>*uncontrolled*</u> emission factor of 1 lb PM/ton total feed emitted from transfer and storage of processed phosphate rock. Not all of the conveyor belts nor transfer points in the facility's processed phosphate ore transfer system are used simultaneously, however the AP-42 factor is assumed to be an average facility-wide emissions estimation tool for <u>uncontrolled</u> emissions.

Fugitive emissions from processed phosphate ore transfer at the facility are very much controlled. As was stated above, all the conveyors are covered and transfer points from conveyor to conveyor are enclosed and evacuated to baghouses. The discussion in AP-42 further substantiates the fact that emissions from this type of transfer system are extremely difficult to estimate.

As stated in IDAPA 16.01.01.317.01 defining "Insignificant Activities", the processed phosphate ore transfer system illustrated on the diagram labeled "Calciner Product Transfer" may be defined in Section 317.01(a)(i)(76) as a enclosed conveyor. Emissions from enclosed conveyors are insignificant.

Data contained in Section 7 for ER-9 are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 7: SOLID MATERIAL TRANSPORT, HANDLING, AND STORAGE

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-9, F-Cc-1, Calcined Ore Transfer

STACK DESCRIPTION: P-Cc-1a, 1b, 1c, 1d, 1e (baghouses)

BUILDING DESCRIPTION: North end of Facility

DATE INSTALLED OR LAST MODIFIED: 1967 MATERIAL DESCRIPTION: Calcined Ore

MATERIAL TRANSFER RATES

MAXIMUM HOURLY TRANSFER RATE (UNITS/HOUR): 125

NORMAL HOURLY TRANSFER RATE (UNITS/HOUR): 110

NORMAL ANNUAL TRANFER RATE (UNITS/YEAR): 930K

UNITS OF MEASURE: tons

BELT CONVEYOR/VEHICLE TRANSFER

NUMBER OF TRANSFERS: 5-10 MATERIAL MOISTURE CONTENT (WEIGHT PERCENT): nil MAXIMUM HOURLY WIND SPEED (MPH): AVERAGE HOURLY WIND SPEED (MPH): 3

CONVEYORS ENCLOSED? (Y/N): Y CONVEYORS IN BUILDINGS? (Y/N):

TRANSFERS ENCLOSED? (Y/N): Y TRANSFERS IN BUILDINGS? (Y/N):

PNEUMATIC CONVEYOR TRANSFERS

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT):

PRIMARY SEPARATOR TYPE: PRIMARY SEPARATOR PERCENT EFFICIENCY:

SECONDARY SEPARATOR TYPE: SECONDARY SEPARATOR PERCENT EFFICIENCY:

MATERIAL STORAGE DATA

PILE? (Y/N): STORAGE CAPACITY: PILE LENGTH (FT):

SILO? (Y/N): Y STORAGE CAPACITY UNITS: PILE WIDTH (FT):

OTHER STORAGE TYPE DESCRIPTION: PILE HEIGHT (FT):

MATERIAL DATA

HAP DESCRIPTION	HAP CAS NUMBER	HAP FRACTION IN MATERIAL BY WEIGHT

SECTION 7, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC—FEB	
MAR—MAY	
JUN—AUG	
SEP—NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)	018/099	
MANUFACTURER	Various	
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

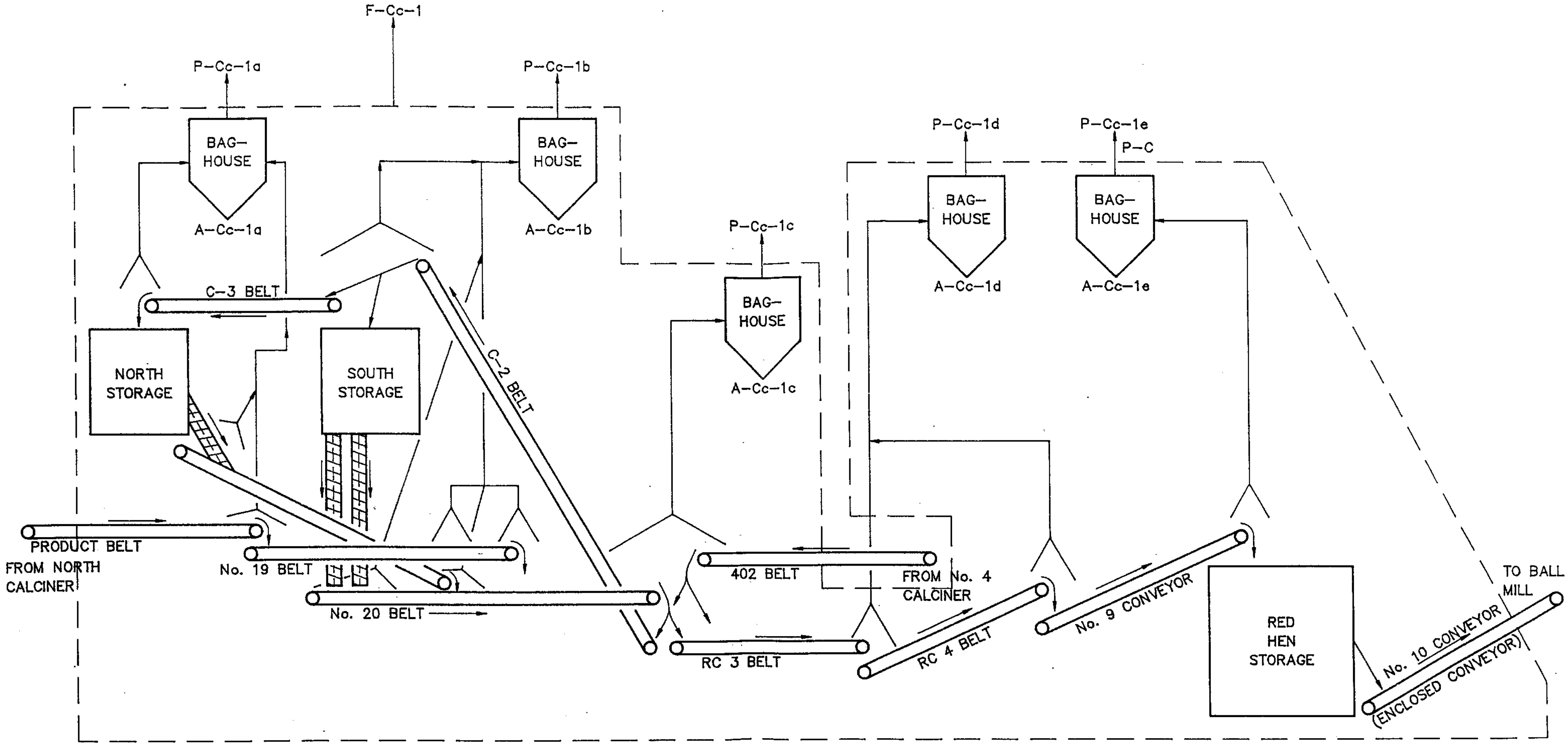
GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	(TONS/YR)	REFERENCE
PM							
PM—10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE — 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR — IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.



NU-WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

CALCINER PRODUCT TRANSFER

Emissions Reference Unit Pollutant Estimation

ER-10

Sources: S-B-1, S-B-2

Ball Mill

AP-42 Table 8.18-3 (7/93 version) shows an emission factor of 0.0064 lbs PM/ton of total feed to the "Grinder with fabric filter" (Ball Mill). Total feed to the Ball Mill in FY 1994 was 932,927 tons. Emissions are estimated below:

0.0064 lbs PM/ton feed * 932,927 tons feed/yr * ton/2000 lbs = **2.99 tons PM/yr**

The entire process and associated equipment is housed inside a building. As stated in IDAPA 16.01.01.317.01 defining "Insignificant Activities", emissions from building ventilation are insignificant. See Section 317.01(a)(i)(9).

Data used from calendar year 1994 or fiscal year 1994 are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 3: PROCESS AND MANUFACTURING OPERATIONS

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	ER-10, S-B-1 & S-B-2, Ball Mill
STACK DESCRIPTION	P-B-1/3, P-B-2/3
BUILDING DESCRIPTION	Ball Mill

MANUFACTURER	Hardinge	MODEL		DATE INSTALLED OR LAST MODIFIED	1965

PROCESSING DATA

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	ACTUAL ANNUAL RATE	UNITS
INPUT	Calcined Ore	125	107		tons
PRODUCT OUTPUT	Ground Rock (Ore)				
WASTE OUTPUT					
RECYCLE					

POTENTIAL HAPS IN PROCESSING STREAMS

HAPS DESCRIPTION	HAP CAS NUMBER	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLE STREAM BY WEIGHT

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-B-1a	A-B-1b
TYPE CODE (FROM APP. A)	075	076
MANUFACTURER	Hardinge	Hardinge
MODEL NUMBER	126	
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE
EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-B-1c	A-B-1d/3
TYPE CODE (FROM APP. A)	018	018
MANUFACTURER	Dracco	Pangborn
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		3
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	6155
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	04
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	60
STACK EXIT DIAMETER (FT)	1.5
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE
EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-B-2a	A-B-2b
TYPE CODE (FROM APP. A)	075	076
MANUFACTURER	Hardinge	Hardinge
MODEL NUMBER	168-c	
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE
EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER	
DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE	
HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-B-2c	A-B-2d/3
TYPE CODE (FROM APP. A)	076	018
MANUFACTURER	Hardinge	Mikkro-Pulsaire
MODEL NUMBER		1F2
PRESSURE DROP (IN. OF WATER)		2.5
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

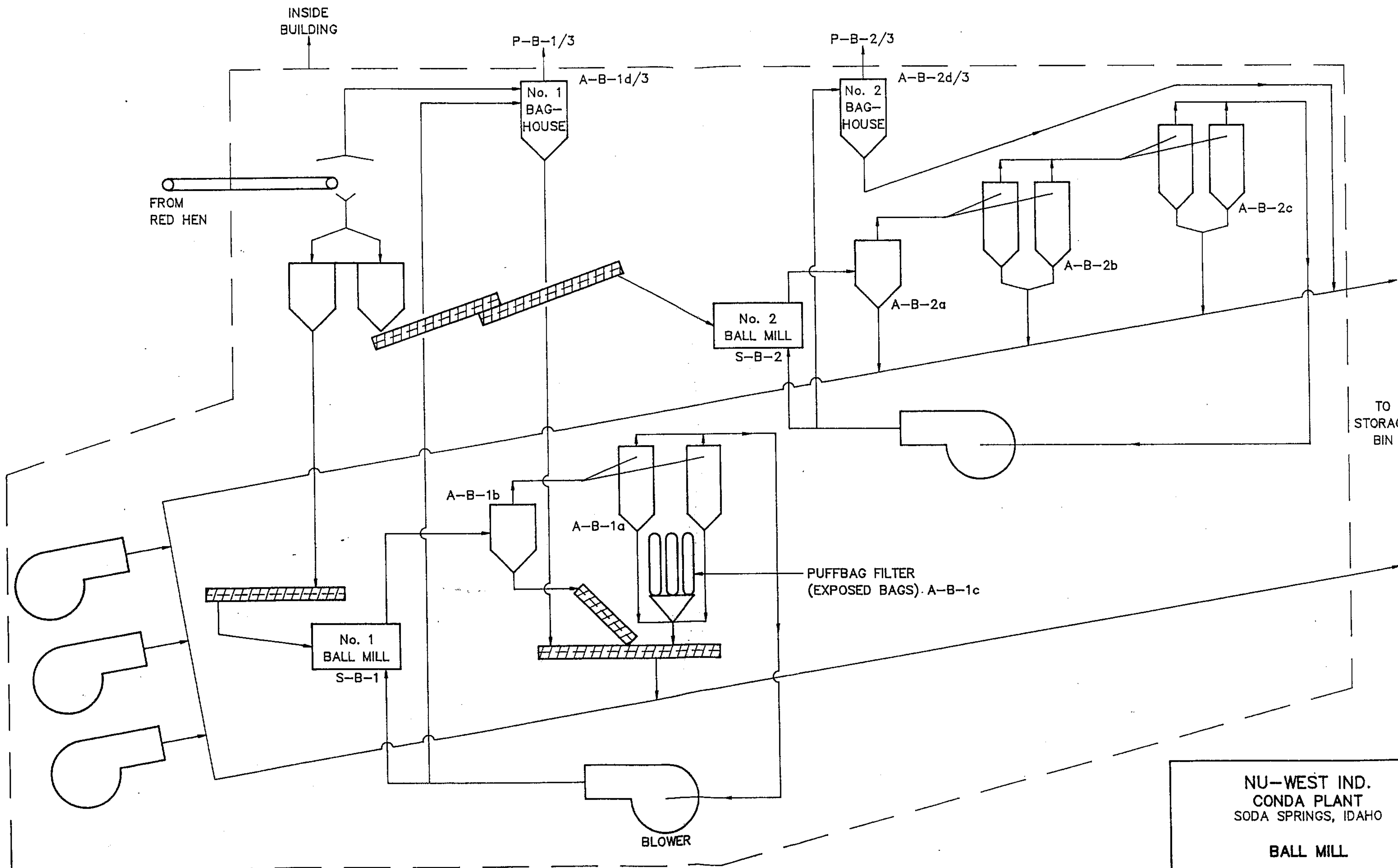
GROUND ELEVATION (FT)	6155
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	04
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	46
STACK EXIT DIAMETER (FT)	1.5
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.



NU-WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

BALL MILL

Emissions Reference Unit Pollutant Estimation

ER-11

Sources: S-Fa-1, S-Fa-2, and S-Fa-3

Dry Fertilizer (DAP) Plant

Basis is 1994 data.
Is this too old...
especially considering
chgs in ownership/mgmt?!

The permitted PM emissions limit from this plant is based on the Process Weight Rate equation:

$1.12(PWR)^{0.27}$
PWR = Process Weight Rate in lbs./hr.

Process Weight Rate is calculated using the weight of slurry fed into the granulation process. The rate of slurry feed can be extrapolated from production by the following equation:

tons production/hours of production * 3.1 = gal./min. slurry feed

Estimated actual emissions from the DAP plant are based on calendar year 1994 DAP plant operating data and most recent source test data. The DAP plant produced 263,031 tons of dry product in calendar year 1994 in 4591 operating hours.

263,031 tons/4591 hours * 3.1 = 178 gal./min. slurry feed (average)

The average slurry feed value can then be used to approximate the process weight rate by the following equation:

PWR = 178 gal/min * 1.6 g/ml * 3785 ml/gal * lb/453.6 g * 60 min/hr = 142,588 lbs/hr

$1.12(142{,}588)^{0.27} = 27.59$ lbs/hr allowable PM emission limit

The most recent stack test of the DAP plant showed PM emissions at 63% of allowable standard by process weight rate. Estimated actual PM emisions from the DAP plant using 1994 operating data and most recent source test data are as follows:

27.59 lbs PM/hr * 63% = 17.38 lbs PM/hr

In addition to PM emissions, Fluoride emissions from the DAP Plant are set by Permit 13-0420-0003-10 at 12.44 lbs/hr. The most recent source test of the DAP Plant showed F^- emissions at 46% of allowable standard:

12.44 lbs F^-/hr * 46% = 5.72 lbs F^-/hr

All equipment associated with the DAP Plant is housed inside a building. As stated in IDAPA 16.01.01.317.01 defining "Insignificant Activities", emissions from building ventilation are insignificant. See Section 317.01(a)(i)(9).

Data used from calendar year 1994 or fiscal year 1994 and stack test data are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 3: PROCESS AND MANUFACTURING OPERATIONS

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-11, S-Fa-1, 2, & 3, DAP Plant

STACK DESCRIPTION: P-Fa-1/2/3/4

BUILDING DESCRIPTION: DAP

MANUFACTURER: Various

MODEL:

DATE INSTALLED OR LAST MODIFIED: 1967

PROCESSING DATA

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	ACTUAL ANNUAL RATE	UNITS
INPUT	Phos acid slurry	250	178		gpm
PRODUCT OUTPUT	DAP; MAP	80	57		tons/hr
WASTE OUTPUT					
RECYCLE					

POTENTIAL HAPS IN PROCESSING STREAMS

HAPS DESCRIPTION	HAP CAS NUMBER	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLE STREAM BY WEIGHT

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER		OPERATING SCHEDULE	
DEC–FEB		HOURS/DAY	
MAR–MAY		DAYS/WEEK	
JUN–AUG		WEEKS/YEAR	
SEP–NOV			

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-Fa-1a	A-Fa-1b
TYPE CODE (FROM APP. A)	053	052
MANUFACTURER	Airetron	Airetron
MODEL NUMBER	435 XRL	535 RL
PRESSURE DROP (IN. OF WATER)	12	
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	6157
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	120
STACK EXIT DIAMETER (FT)	10
STACK EXIT GAS FLOWRATE (ACFM)	200K
STACK EXIT TEMPERATURE (DEG. F)	125

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE
EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-Fa-2a	A-Fa-2b
TYPE CODE (FROM APP. A)	076	053
MANUFACTURER	Airetron	Airetron
MODEL NUMBER	B-66	470 RL
PRESSURE DROP (IN. OF WATER)	4.8	
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER		OPERATING SCHEDULE	
DEC–FEB		HOURS/DAY	
MAR–MAY		DAYS/WEEK	
JUN–AUG		WEEKS/YEAR	
SEP–NOV			

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-Fa-3a	A-Fa-3b
TYPE CODE (FROM APP. A)	076	053
MANUFACTURER	Ducon	Airetron
MODEL NUMBER	4-320 SDM	435 RL
PRESSURE DROP (IN. OF WATER)		11
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

ECTION 2: FUEL BURNING EQUIPMENT

EQ USE ONLY

Q PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
Q BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
Q SEGMENT CODE					

ART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-11, S-Fa-2, DAP Dryer

CK DESCRIPTION: P-Fa-1/2/3/4

BUILDING DESCRIPTION: DAP

NUFACTURER: Renneburg

MODEL:

DATE INSTALLED OR LAST MODIFIED: 1967

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

ION BTU/HR: 55 | 1000 LBS STEAM/HR: | kW: | hP:

BURNER TYPE (SEE NOTE BELOW): 11

PERCENT USED FOR PROCESS: 100

PERCENT USED FOR SPACE HEAT:

FUEL DATA

AMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
UEL CODE (SEE NOTE BELOW)	01			
CENT SULFUR				
ERCENT ASH				
CENT NITROGEN				
ERCENT CARBON				
ENT HYDROGEN				
ERCENT MOISTURE				
CONTENT (BTU/UNIT)				
UM HOURLY BUSTION RATE (UNITS/HR)				
RMAL ANNUAL COMBUSTION RATE (UNITS/YR)				

: BURNER TYPE -- 01) SPREADER STOKER; 02) CHAIN OR TRAVELING GRATE; 03) HAND FIRED; 04) CYCLONE FURNACE;
05) WET BOTTOM (PULVERIZED COAL); 06) DRY BOTTOM (PULVERIZED COAL);
07) UNDERFEED STOKER; 08) TANGENTIALLY FIRED; 09) HORIZONTALLY FIRED; 10) AXIALLY FIRED;
11) OTHER (SPECIFY) Air dilution port furnace

FUEL CODES -- 01) NATURAL GAS; 02) #1 OR #2 FUEL OIL; 03) #4 FUEL OIL; 04) #5 OR #6 FUEL OIL; 05) USED OIL
06) WOOD CHIPS; 07) WOOD BARK; 08) WOOD SHAVINGS; 09) SANDER DUST;
10) SUBBITUMINOUS COAL; 11) BITUMINOUS COAL; 12) ANTHRACITE COAL; 13) LIGNITE COAL
14) PROPANE; 15) OTHER (SPECIFY)

SECTION 2, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC – FEB	
MAR – MAY	
JUN – AUG	
SEP – NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

* See Section 3, Part B

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

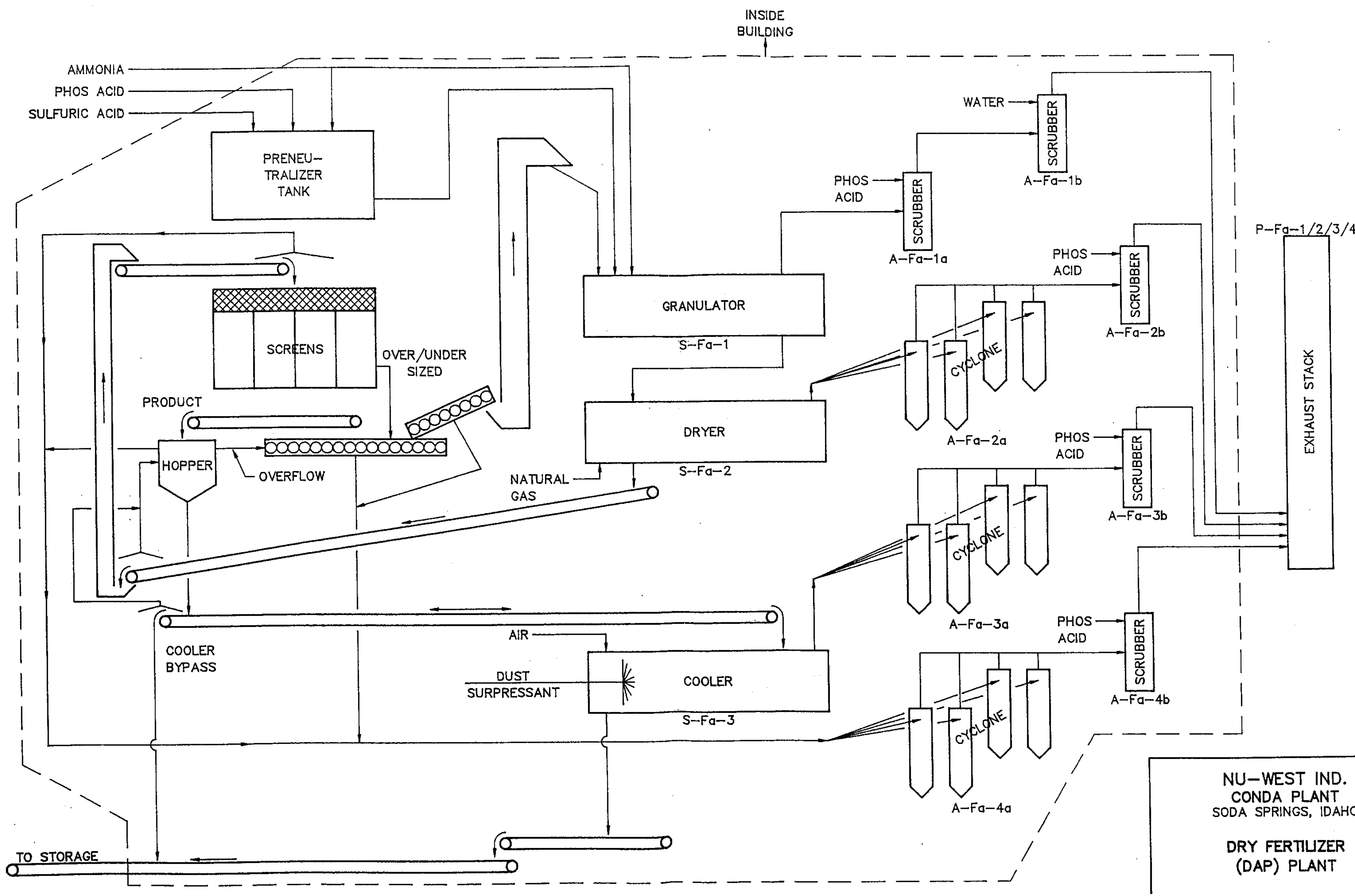
GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.



NU-WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

DRY FERTILIZER (DAP) PLANT

Emissions Reference Unit Pollutant Estimation

ER-12

Sources: F-Fb-1, F-Fb-2

Dry Fertilizer Loadout

For lack of a better method to estimate air pollutant emissions from dry product loadout at the Nu-West facility, the following exercise uses the emission estimation factor found in AP-42, Supplement B, 11.2.3.3 ("Aggregate Handling and Storage Piles").

$E = k(0.0032)\,[(U/5)^{1.3} / (M/2)^{1.4}]$ (lb/ton)

Where:
- E = emission factor (lb/ton)
- k = particle size multiplier (found in table 11.2.3-2.)
- U = mean wind speed (mph)
- M = material moisture content (%)

The dry product at the facility typically contains 0.24% to 1.24% ; M = 0.7
Wind speed measurements taken at the facility from 1992 through January 1995 show and average wind speed of 3.0 mph. The loadout area has a substantial roof and walls on either side. When a semi truck or train car is being loaded, the loadout area is enclosed to a greater degree. Inasmuch as wind is greatly reduced in this area, wind speed is estimated at 1 mph (U=1). For the purpose of this exercise, the "worst-case" particle size multiplier will be used; k = 0.74

$E = 0.74(0.0032)\,[(1/5)^{1.3} / (0.7/2)^{1.4}]$ (lb/ton) = 0.0013 lbs/ton

267,739 tons of dry product fertilizer were loaded in FY ending June 1994. The system will deliver approximately 120 tons dry product to loadout per hour. The estimated actual fugitive emissions from dry product loadout, using 1994 operations data are as follows:

267,739 tons loaded * 1 hour operation /120 tons loaded = 2231 hours

267,739 tons/2231 hours * 0.0013 lb/ton = 0.16 lbs PM/hr

The dry product fertilizer is treated with a dust suppressant chemical at two (2) points before loadout. Allowing a reduction of 50% yields:

0.16 lbs/hr * 0.50 = 0.08 lbs PM/hr

All equipment associated with the Dry Fertilizer Loadout, other than the loadout chutes, is housed inside a building. As stated in IDAPA 16.01.01.317.01 defining "Insignificant Activities", emissions from building ventilation are insignificant. See Section 317.01(a)(i)(9).

This doesn't appear to be appropriate use of 317.01(a)(i)(9).

Data used from calendar year 1994 or fiscal year 1994 are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 7: SOLID MATERIAL TRANSPORT, HANDLING, AND STORAGE

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	ER-12, F-Fb-1 & 2, Dry Fertilizer Loadout
STACK DESCRIPTION	NA
BUILDING DESCRIPTION	"Shipping Building"
DATE INSTALLED OR LAST MODIFIED	1967
MATERIAL DESCRIPTION	Dry Fertilizer Product

MATERIAL TRANSFER RATES

MAXIMUM HOURLY TRANSFER RATE (UNITS/HOUR)	240
NORMAL HOURLY TRANSFER RATE (UNITS/HOUR)	120
NORMAL ANNUAL TRANFER RATE (UNITS/YEAR)	250K
UNITS OF MEASURE	tons

BELT CONVEYOR/VEHICLE TRANSFER

NUMBER OF TRANSFERS	10-20	MATERIAL MOISTURE CONTENT (WEIGHT PERCENT)	0.7	MAXIMUM HOURLY WIND SPEED (MPH)	NA	AVERAGE HOURLY WIND SPEED (MPH)	1

CONVEYORS ENCLOSED? (Y/N)	Y	CONVEYORS IN BUILDINGS? (Y/N)	Y
TRANSFERS ENCLOSED? (Y/N)	Y	TRANSFERS IN BUILDINGS? (Y/N)	Y

PNEUMATIC CONVEYOR TRANSFERS

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT)			
PRIMARY SEPARATOR TYPE		PRIMARY SEPARATOR PERCENT EFFICIENCY	
SECONDARY SEPARATOR TYPE		SECONDARY SEPARATOR PERCENT EFFICIENCY	

MATERIAL STORAGE DATA

PILE? (Y/N)		STORAGE CAPACITY		PILE LENGTH (FT)	
SILO? (Y/N)		STORAGE CAPACITY UNITS		PILE WIDTH (FT)	
OTHER STORAGE TYPE DESCRIPTION	Inside building			PILE HEIGHT (FT)	

MATERIAL DATA

HAP DESCRIPTION	HAP CAS NUMBER	HAP FRACTION IN MATERIAL BY WEIGHT

SECTION 7, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	41.5
BUILDING LENGTH (FT)	1088
BUILDING WIDTH (FT)	125

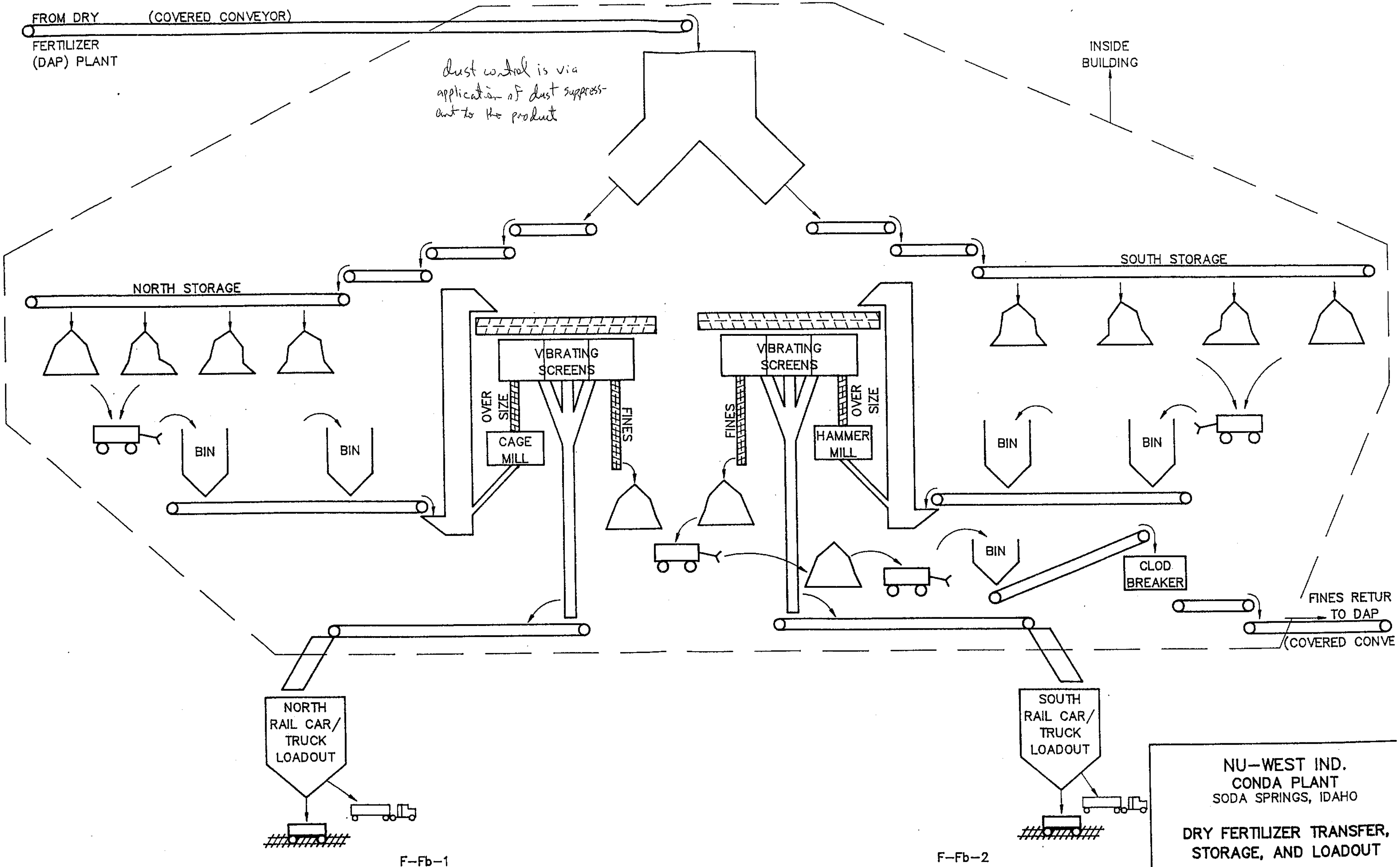
STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO_2							
CO							
NO_x							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE
EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.



NU-WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

DRY FERTILIZER TRANSFER,
STORAGE, AND LOADOUT

Emissions Reference Unit Pollutant Estimation

ER-13

Source: S-Pb-1

Super Acid Filtration

During Super Phosphoric Acid (SPA) filtration, the solids filtered out of the acid are routed to a sump inside the SPA Filter building. The sump is enclosed and evacuated by a fan to direct fumes and odors out of the building and away from workers for improved industrial hygiene. This fan does not include any additional control device and is only used to convey fumes and odors away from the sump and worker area.

Data (source tests or published emission factors) to estimate fluoride emissions from this fan does not exist. Emissions from this activity, however, are covered in the Insignificant Activities Section 317.01(a)(i)(9). To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 3: PROCESS AND MANUFACTURING OPERATIONS

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	ER-13, S-Pb-1, Super Acid Filtration
STACK DESCRIPTION	P-Pb-1
BUILDING DESCRIPTION	SPA

MANUFACTURER	Various	MODEL		DATE INSTALLED OR LAST MODIFIED	1980

PROCESSING DATA

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	ACTUAL ANNUAL RATE	UNITS
INPUT	Unfiltered SPA		45-75		tons
PRODUCT OUTPUT	Filtered SPA		35-60		tons
WASTE OUTPUT	SPA cake		10-15		tons
RECYCLE					

POTENTIAL HAPS IN PROCESSING STREAMS

HAPS DESCRIPTION	HAP CAS NUMBER	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLE STREAM BY WEIGHT

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

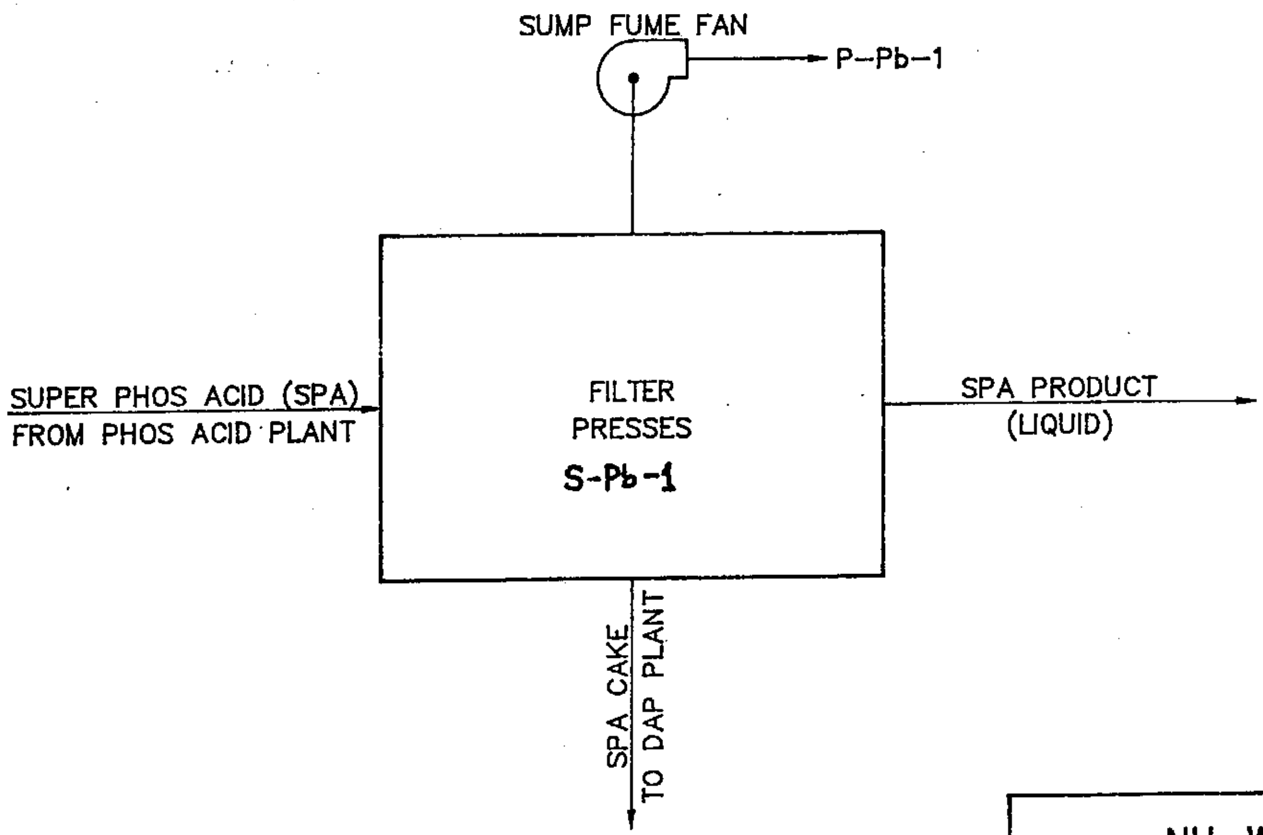
GROUND ELEVATION (FT)	6155
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	30
STACK EXIT DIAMETER (FT)	1.67
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.



NU–WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

SUPER ACID FILTRATION

Emissions Reference Unit Pollutant Estimation

ER-14

Source: S-Se-1

East Sulfuric Acid Plant

Emissions from the East Sulfuric Acid Plant are regulated under the NSPS rules found in 40 CFR 60.80 -60.85, and by Permit to Construct # 029-00003, issued January 5, 1996. The emissions limits are as follows:

> Maximum SO_2 emission = 4 lb./ton sulfuric acid produced; 258 lb./hr; 945 tons/yr.
> Maximum SO_3 and acid mist emission = 0.15 lb./ton sulfuric acid produced

Production for calendar year 1998 was 464,108 tons of acid produced in 8,348 operating hours. 1998 source tests showed the East sulfuric acid plant SO_2 at 74% of the allowable 4 lb. SO_2/ton acid standard and SO_3/acid mist emissions at 50% of allowable 0.15 lb. SO3/ton acid standard. CEMs showed the plant emitted 687 tons of SO_2 during the year. The estimated actual SO_2 emissions for the East plant are as follows:

Production/CEM method:

687 tons SO2 emitted/ 464,108 tons acid produced * 2000 lb./ton = 2.96 lb. SO_2/ton acid

464,108 tons acid/8,348 hours * 2.96 lb. SO_2/ton acid = 165 lb. SO_2/hr

165 lb. SO_2/hr * 8,348 hrs/yr * ton/2000 lb. = 689 tons SO_2/yr

Production/Stack test method:

4 lb. SO_2/ton acid * 0.74 = 2.96 lb. SO_2/ton acid

4 lb. SO_2/ton acid * 0.74 * 464,108 tons acid/8,348 hours = 165 lb. SO_2/hr

0.15 lb. SO_3 (acid mist)/ton acid * 0.50 = 0.075 lb. SO3/ton acid produced - TAP

Data used from calendar year 1998 and stack tests are used soley for the purpose of approximating emissions.

SECTION 3: PROCESS AND MANUFACTURING OPERATIONS

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-14, S-Se-1, East Sulfuric Acid Plant

STACK DESCRIPTION: P-Se-1

BUILDING DESCRIPTION: East Sulfuric

MANUFACTURER: Monsanto

MODEL:

DATE INSTALLED OR LAST MODIFIED: 1974

PROCESSING DATA

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	ACTUAL ANNUAL RATE	UNITS
INPUT	Sulfur	2184	1876		gallons
PRODUCT OUTPUT	H2SO4	50	43		tons
WASTE OUTPUT					
RECYCLE					

POTENTIAL HAPS IN PROCESSING STREAMS

HAPS DESCRIPTION	HAP CAS NUMBER	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLE STREAM BY WEIGHT

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)	044	
MANUFACTURER	Monsanto	
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

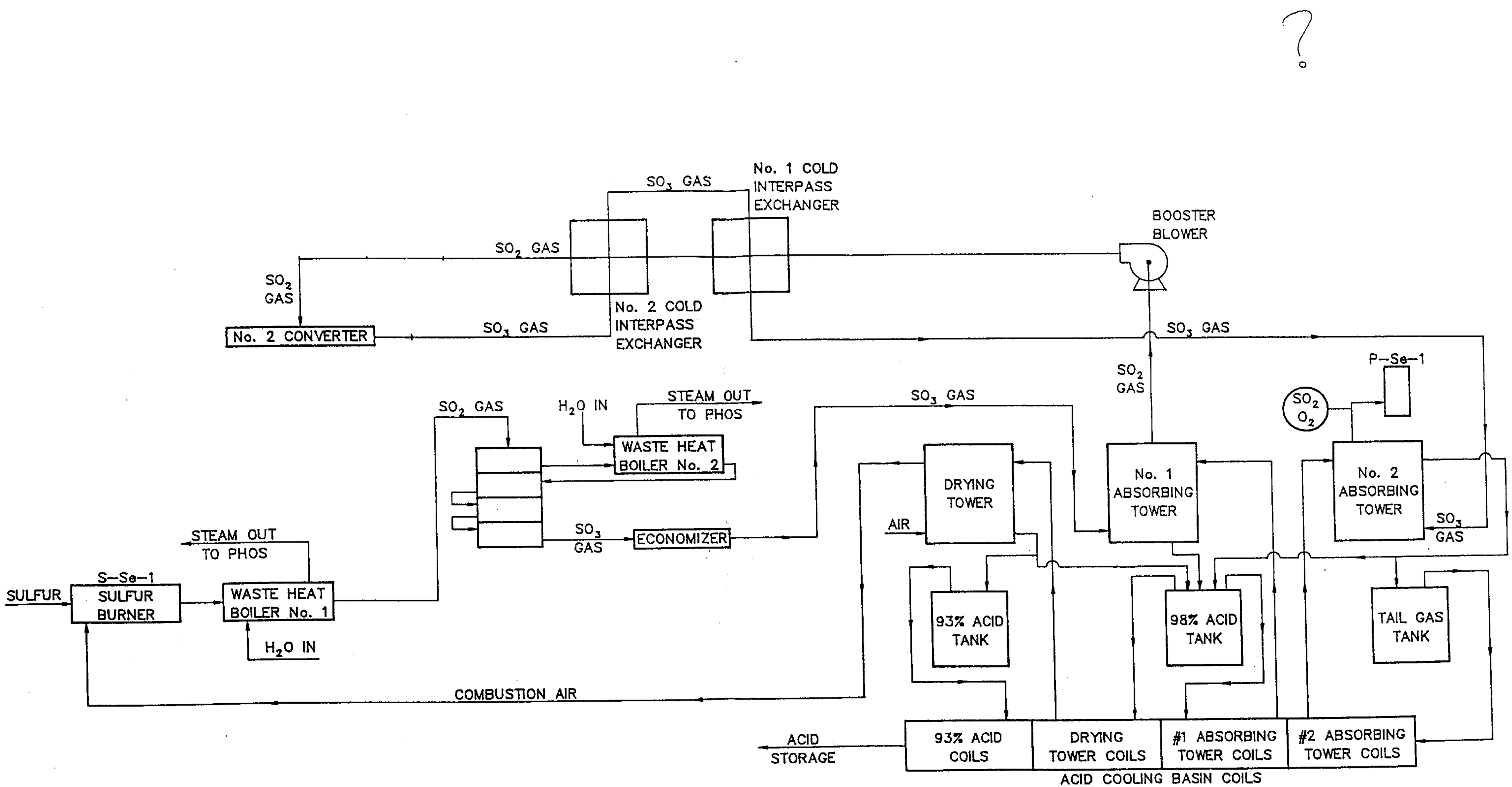
STACK DATA

GROUND ELEVATION (FT)	6155
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	105
STACK EXIT DIAMETER (FT)	7.5
STACK EXIT GAS FLOWRATE (ACFM)	107K
STACK EXIT TEMPERATURE (DEG. F)	179

AIR POLLUTANT EMISSIONS

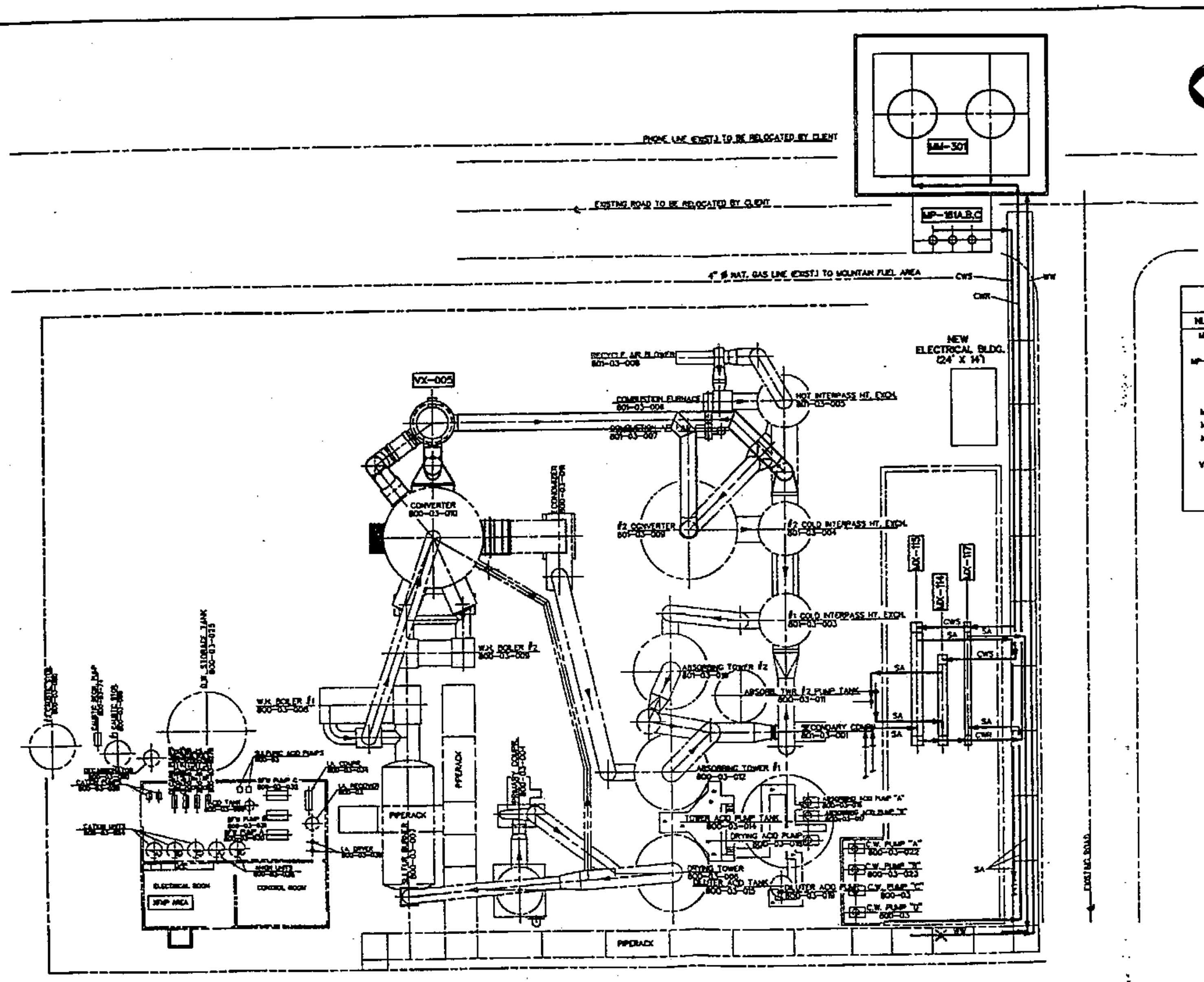
POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	REFERENC
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE
EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.



NU-WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

SULFURIC ACID PLANT (EAST



NUMBER	DESCRIPTION	
	EQUIPMENT LIST (MAJOR EQUIPMENT ONLY)	
MM-301	WATER COOLING TOWER	
MP-161A,B,C	COOLING TOWER SUPPLY PUMPS	
MX-114	FAT ACID COOLER	
MX-115	COMMON ACID COOLER	
MX-117	PRODUCT ACID COOLER	
VX-005	HOT INTERPASS HEAT EXCHANGER	

MONSANTO ENVIRO-CHEM SYSTEMS, INC.
ST. LOUIS, MISSOURI

GENERAL PIPE ROUTING

NU-WEST — SODA SPRINGS, ID

JOB NO. 2766 — DRAWING NO. 701-101 — REVISION A

SCALE 1/16"=1'-0"

4/17/95 — PROPOSAL

ISSUE DATE — PURPOSE OF ISSUE

THIS DRAWING IS THE PROPERTY OF MONSANTO ENVIRO-CHEM SYSTEMS INC

276670101

Emissions Reference Unit Pollutant Estimation

ER-15

Source: S-Nb-1

"B-5" Nebraska Boiler

The B-5 Nebraska boiler is a natural gas fired boiler used to produce steam necessary to the Phosphoric acid plant operations. The Permit to Construct (PTC 29-00003) includes the following pollutant emission limits:

PM = 1.05 lbs/hr

PM_{10} = 1.05 lbs/hr

SO2 = 0.13 lb/hr

NOx = 16.84 lb/hr

VOC = 0.36 lb/hr

CO = 8.42 lb/hr

An initial performance test was performed on the B-5 Boiler on May 1 through May 31, 1996 to determine NO_X emissions. NO_X emissions averaged 5.53 lb./hr for the performance test period with a maximum of 7.87 lb./hr and a minimum of 4.63 lb./hr.

Figures shown represent maximum pollutant emission limits which are contained in PTC 029-00003. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

ECTION 2: FUEL BURNING EQUIPMENT

EQ USE ONLY

Q PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
Q BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
Q SEGMENT CODE					

ART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-15, S-Nb-1, B-5 Nebraska Boiler

ACK DESCRIPTION: P-Nb-1

BUILDING DESCRIPTION: North Sulfuric

NUFACTURER: Nebraska Boiler

MODEL: NSX-G-107ECON

DATE INSTALLED OR LAST MODIFIED: 1995

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

LION BTU/HR: 213.8

1000 LBS STEAM/HR:

kW:

hP:

BURNER TYPE (SEE NOTE BELOW): 10

PERCENT USED FOR PROCESS: 100

PERCENT USED FOR SPACE HEAT:

FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (SEE NOTE BELOW)	01			
CENT SULFUR				
ERCENT ASH				
ENT NITROGEN				
ERCENT CARBON				
ENT HYDROGEN				
ERCENT MOISTURE				
CONTENT (TU/UNIT)				
UM HOURLY BUSTION RATE (UNITS/HR)				
ORMAL ANNUAL COMBUSTION RATE (UNITS/YR)				

S: BURNER TYPE -- 01) SPREADER STOKER; 02) CHAIN OR TRAVELING GRATE; 03) HAND FIRED; 04) CYCLONE FURNACE;

05) WET BOTTOM (PULVERIZED COAL); 06) DRY BOTTOM (PULVERIZED COAL);

07) UNDERFEED STOKER; 08) TANGENTIALLY FIRED; 09) HORIZONTALLY FIRED; 10) AXIALLY FIRED;

11) OTHER (SPECIFY)

FUEL CODES -- 01) NATURAL GAS; 02) #1 OR #2 FUEL OIL; 03) #4 FUEL OIL; 04) #5 OR #6 FUEL OIL; 05) USED OIL

06) WOOD CHIPS; 07) WOOD BARK; 08) WOOD SHAVINGS; 09) SANDER DUST;

10) SUBBITUMINOUS COAL; 11) BITUMINOUS COAL; 12) ANTHRACITE COAL; 13) LIGNITE COAL

14) PROPANE; 15) OTHER (SPECIFY)

SECTION 2, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER	
DEC – FEB	
MAR – MAY	
JUN – AUG	
SEP – NOV	

OPERATING SCHEDULE	
HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-Nb-1	
TYPE CODE (FROM APP. A)	026, 027, 033	
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

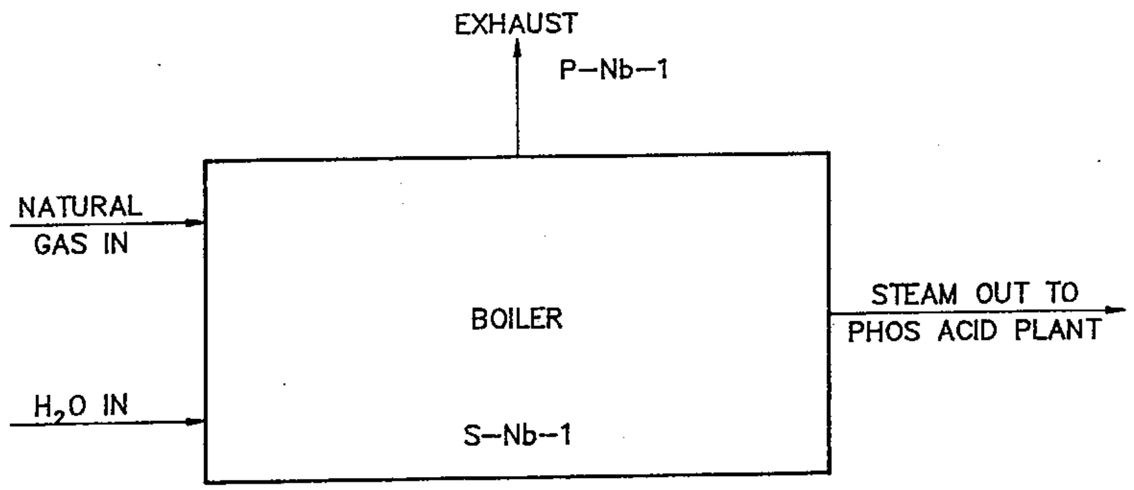
GROUND ELEVATION (FT)	6155
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	50
STACK EXIT DIAMETER (FT)	5.5
STACK EXIT GAS FLOWRATE (ACFM)	82417
STACK EXIT TEMPERATURE (DEG. F)	309

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM					1.05		PTC
PM-10					1.05		PTC
SO2					0.13		PTC
CO					8.42		PTC
NOx					16.84		PTC
VOC					0.36		PTC
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.



NU–WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

B–5 NEBRASKA BOILER

Emissions Reference Unit Pollutant Estimation

ER-16

Source: S-Cd-1

Ground Rock Silo

Ground rock (calcined ore which has passed through the Ball Mill) is pneumatically transfered from the Ball Mill to the Ground Rock Silo. The silo is equipped with two (2) Pulsaire baghouses to control fugitive emissions. The pneumatic transfer is a totally "closed" system. The baghouses have no specified emission limits except for opacity limits. The baghouses are operated and maintained by monitoring pressure drops and by monitoring visual emissions of the exhaust air. The pneumatic transfer system is an identified Insignificant Activity at Section 317.01(a)(i)(76) and (78). Data (source tests or published emission factors) to estimate emissions of particulate matter from the baghouses associated with this process does not exist.

See ER-9 for more discussion on calcined ore transfer.

Figures shown represent 1994 data taken from the Ball Mill production and are used solely to approximate the Ground Rock Silo throughput. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 7: SOLID MATERIAL TRANSPORT, HANDLING, AND STORAGE

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-16, S-Cd-1, Ground Rock Silo

STACK DESCRIPTION: P-Cd-1

BUILDING DESCRIPTION: Phos Acid

DATE INSTALLED OR LAST MODIFIED: 1965

MATERIAL DESCRIPTION: Ground calcined ore

MATERIAL TRANSFER RATES

MAXIMUM HOURLY TRANSFER RATE (UNITS/HOUR): 125

NORMAL HOURLY TRANSFER RATE (UNITS/HOUR): 107

NORMAL ANNUAL TRANFER RATE (UNITS/YEAR): 930K

UNITS OF MEASURE: tons

BELT CONVEYOR/VEHICLE TRANSFER

NUMBER OF TRANSFERS:

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT):

MAXIMUM HOURLY WIND SPEED (MPH):

AVERAGE HOURLY WIND SPEED (MPH):

CONVEYORS ENCLOSED? (Y/N):

CONVEYORS IN BUILDINGS? (Y/N):

TRANSFERS ENCLOSED? (Y/N):

TRANSFERS IN BUILDINGS? (Y/N):

PNEUMATIC CONVEYOR TRANSFERS

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT): nil.

PRIMARY SEPARATOR TYPE:

PRIMARY SEPARATOR PERCENT EFFICIENCY:

SECONDARY SEPARATOR TYPE:

SECONDARY SEPARATOR PERCENT EFFICIENCY:

MATERIAL STORAGE DATA

PILE? (Y/N):

STORAGE CAPACITY: 1300

PILE LENGTH (FT):

SILO? (Y/N): Y

STORAGE CAPACITY UNITS: tons

PILE WIDTH (FT):

OTHER STORAGE TYPE DESCRIPTION:

PILE HEIGHT (FT):

MATERIAL DATA

HAP DESCRIPTION	HAP CAS NUMBER	HAP FRACTION IN MATERIAL BY WEIGHT

SECTION 7, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER	
DEC – FEB	
MAR – MAY	
JUN – AUG	
SEP – NOV	

OPERATING SCHEDULE	
HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-Cd-1a	A-Cd-1b
TYPE CODE (FROM APP. A)	018	018
MANUFACTURER	Dracco	Pulsaire
MODEL NUMBER	168 SGT	80F2-10A
PRESSURE DROP (IN. OF WATER)	3	3
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

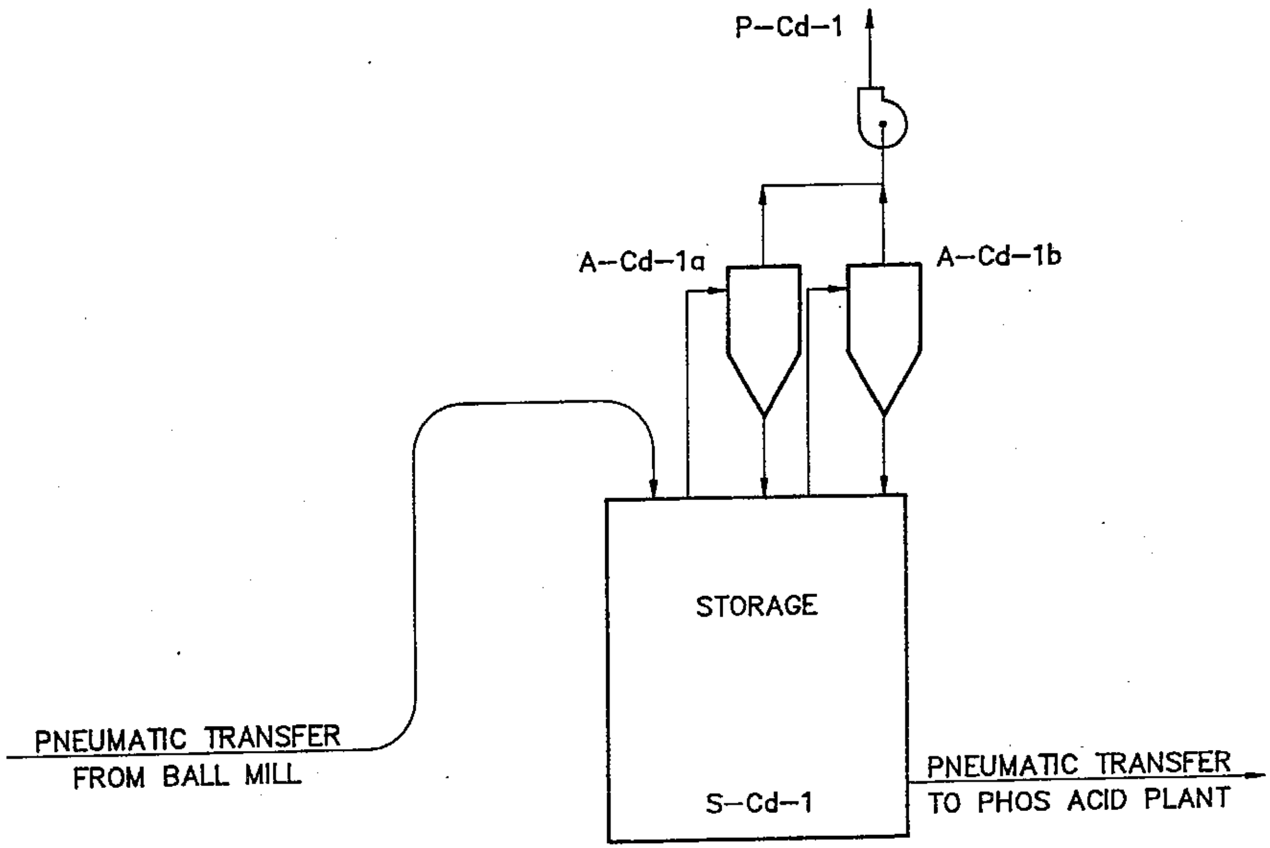
GROUND ELEVATION (FT)	6155
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	90
STACK EXIT DIAMETER (FT)	2.5
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.



NU–WEST IND.
CONDA PLANT
SODA SPRINGS, IDAHO

PNEUMATIC STORAGE AND
TRANSFER TO PHOS ACID PLANT

Emissions Reference Unit Pollutant Estimation

ER- 17

Source: S-Pa-1

Phosphoric Acid Plant

~~The permitted PM emissions limit from this plant is based on the Process Weight Rate equation:~~

$1.12(PWR)^{0.27}$
PWR = Process Weight Rate in lbs./hr.

Process Weight Rate is calculated using the weights of ground rock and sulfuric acid into the digester, extrapolated from the following equations:

Ground Rock to Digester:

tons production/day * 1.5049 * 3 dumps rock/min * 60 min/hr = lbs rock fed/hr
(1.5049 = ratio of TPD P_2O_5 to lbs rock/dump)

$\frac{\text{tons/day}}{\text{lb rock/dump}}$ $\frac{\text{lb rock/dump}}{\text{tons/day}} = \frac{\text{lb rock} \cdot \text{day}}{\text{tons} \cdot \text{dump}}$

Sulfuric Acid to Digester:

tons production//day * 0.2451 * 60 min/hr * 8.34 lbs/gal * 1.83 SPG = lbs H_2SO_4 fed/hr
(0.2451 = ratio of TPD P_2O_5 to gal/min H_2SO_4 ; SPG = specific gravity of H_2SO_4)

CY 1997 production rate averaged 838 TPD:

838 TPD * 1.5049 * 3 dumps rock/min * 60 min/hr = 226,999 lbs rock fed/hr

838 TPD * 0.2451 * 60 min/hr * 8.34 lbs/gal * 1.83 SPG = 188,086 lbs H_2SO_4 fed/hr

226,999 lbs/hr + 188,086 lbs/hr = 415,085 lbs/hr = PWR

$1.12(415{,}085)^{0.27}$ = 36.82 lbs PM/hr = allowable PM emission

The most recent stack test of the Phosphoric Acid Plant showed PM emissions at 69% of allowable standard by process weight rate. Estimated actual PM emisions from the Phosphoric Acid Plant using 1994 operating data and most recent source test data are as follows:

36.82 lbs PM/hr * 69% = 25.41 lbs PM/hr

Again: need to determine if 317.01(a)(i)(9) is use appropriately here.

In addition to PM emissions, Fluoride emissions from the Phosphoric Acid Plant are set by Permit 13-0420-0003-09 at 24.88 lbs/hr. The most recent source test of the Phosphoric Acid Plant showed F^- emissions were also at 84% of allowable standard:

24.88 lbs F^-/hr * 84% = 20.90 lbs F^-/hr

The Phosphoric Acid Plant is housed inside a building. As stated in IDAPA 16.01.01.317.01 defining "Insignificant Activities", emissions from building ventilation are insignificant. See Section 317.01(a)(i)(9).

Data used from calendar year 1997 and stack test data are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 3: PROCESS AND MANUFACTURING OPERATIONS

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-17, S-Pa-1, Phosphoric Acid Plant

STACK DESCRIPTION: P-Pa-1

BUILDING DESCRIPTION: Phos Acid

MANUFACTURER: Various

MODEL:

DATE INSTALLED OR LAST MODIFIED: 1965

PROCESSING DATA

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	ACTUAL ANNUAL RATE	UNITS
INPUT	Slurry	495K	388K		lbs.
PRODUCT OUTPUT	Phos acid (as P2O5)	42	33		tons
WASTE OUTPUT	phosphogypsum	189	148		tons
RECYCLE					

POTENTIAL HAPS IN PROCESSING STREAMS

HAPS DESCRIPTION	HAP CAS NUMBER	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLE STREAM BY WEIGHT

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-Pa-1	
TYPE CODE (FROM APP. A)	052 Cyclonic	
MANUFACTURER	Airetron	
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)	500	
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	6155
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	70
STACK EXIT DIAMETER (FT)	7
STACK EXIT GAS FLOWRATE (ACFM)	88000
STACK EXIT TEMPERATURE (DEG. F)	108

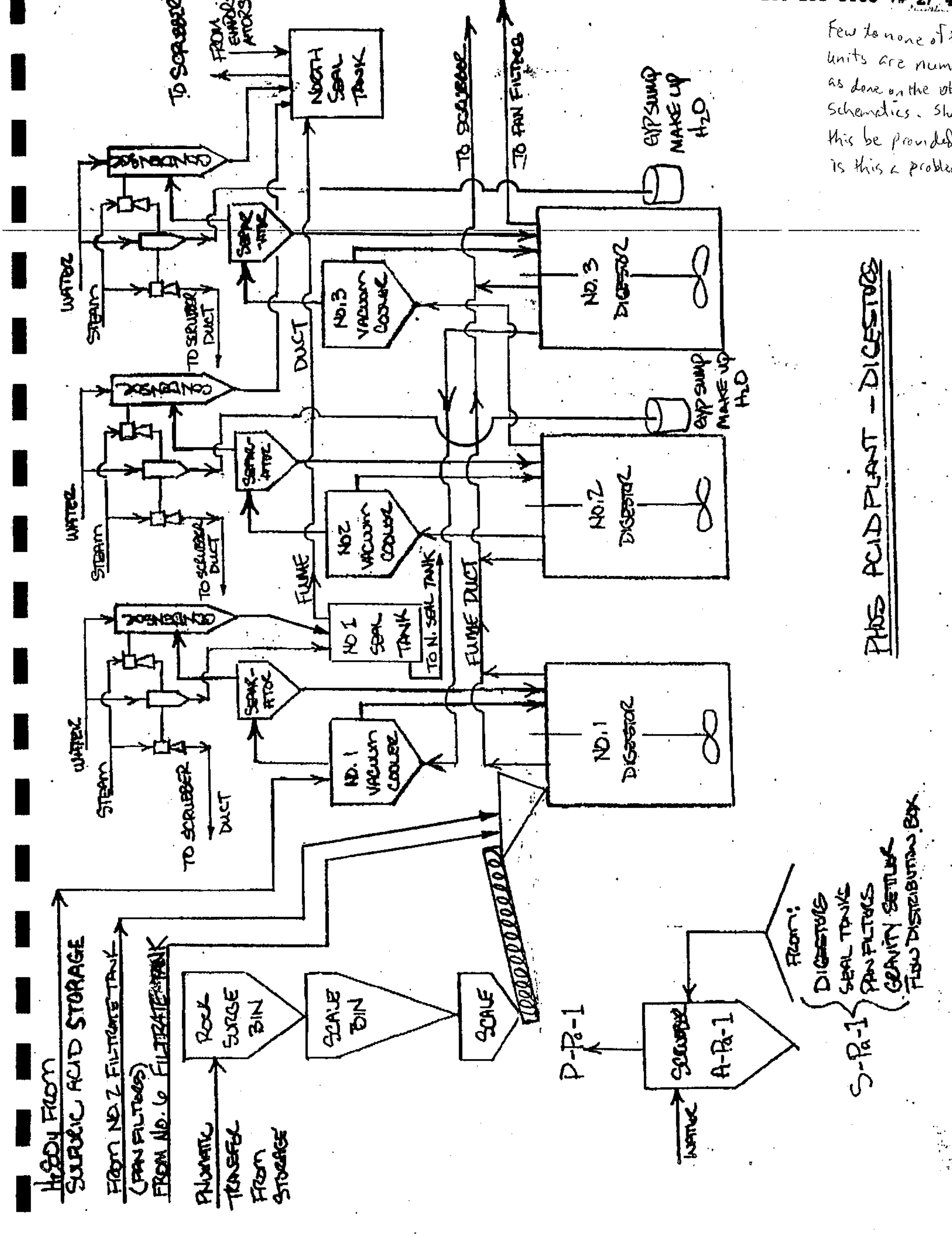
AIR POLLUTANT EMISSIONS

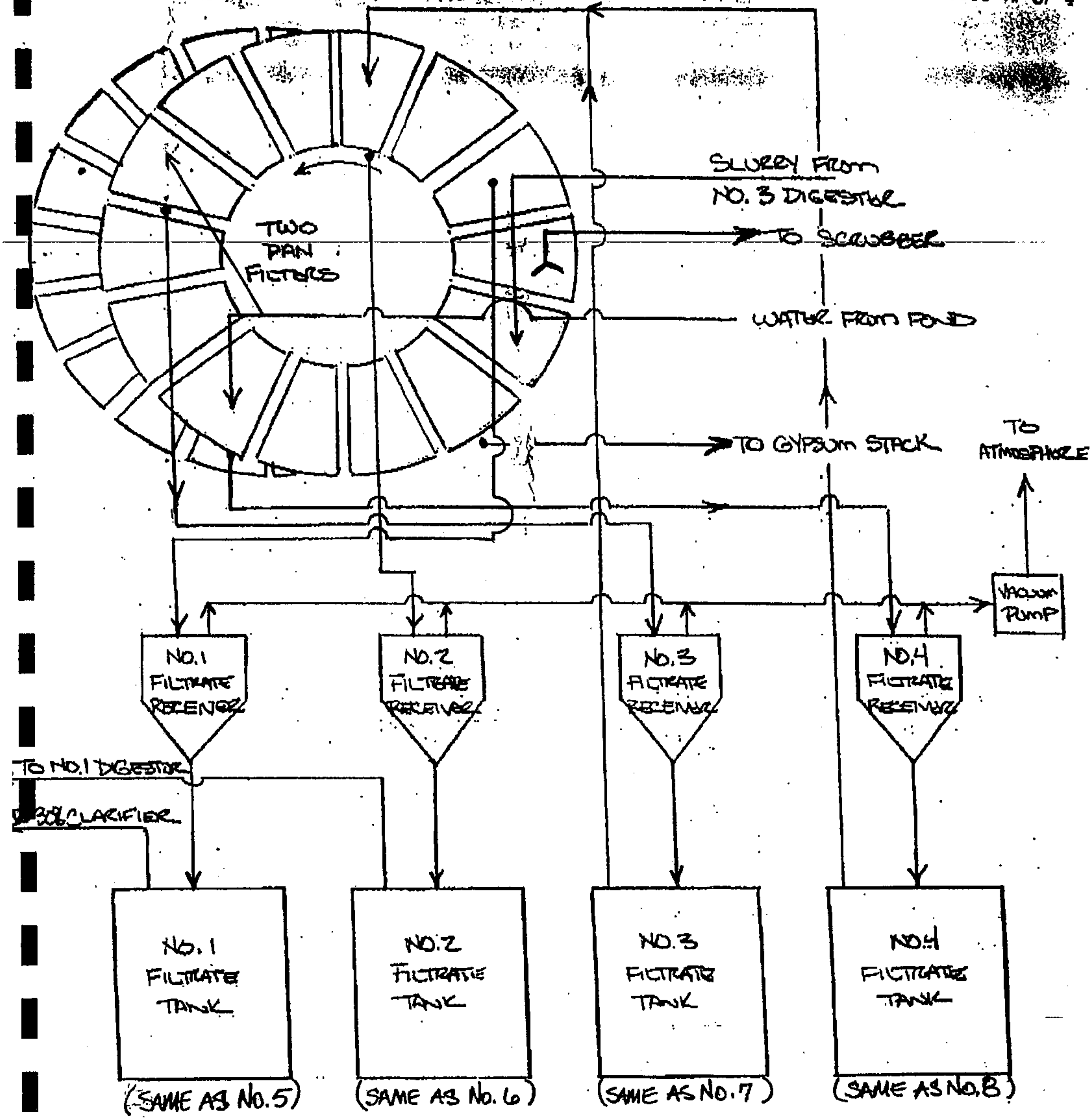
POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	(TONS/YR)	REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE
EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

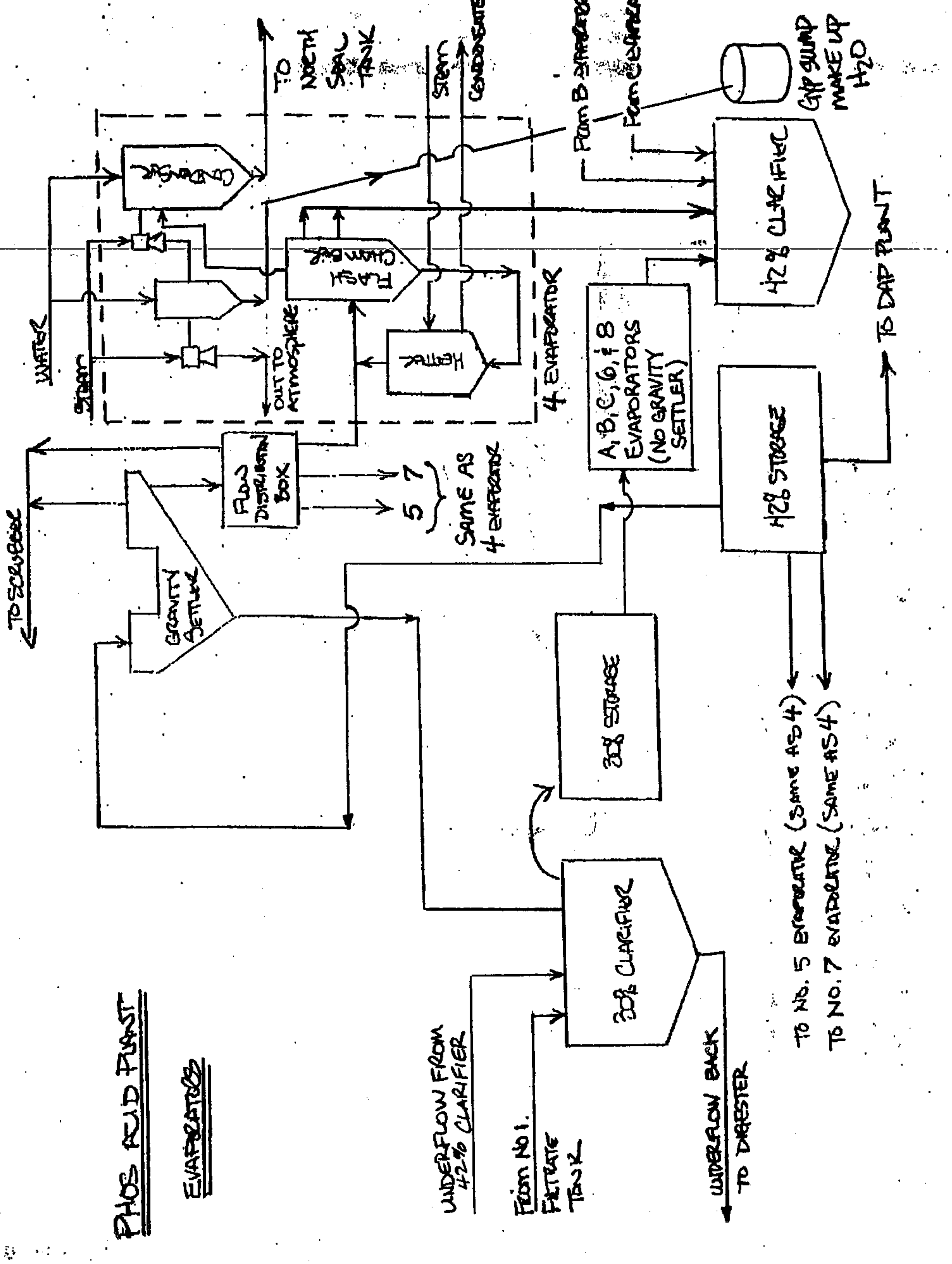
SENT BY: 3- 6-95 : 8:37PM : BROWN AND CALDWELL- 208 233 3008 ;# 2/ 4

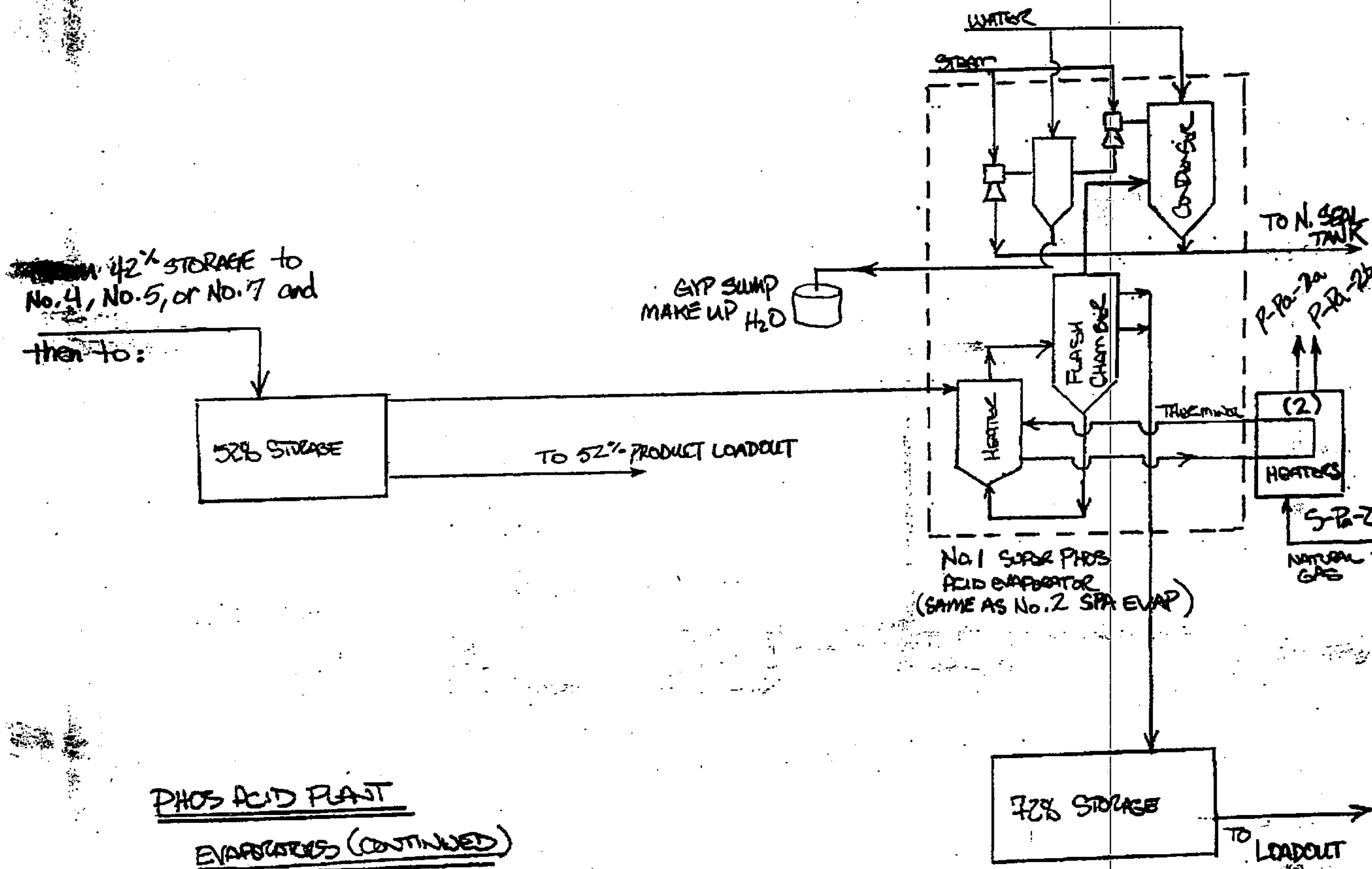
Few to none of these units are numbere as done on the other schematics. Should this be provided? Is this a problem?





PHOS ACID PLANT – FILTRATION SYSTEM


PHOS ACID PLANT
EVAPORATORS
TO NORTH SEAL TANK
STEAM
CONDENSATE
From B Evaporator
From Condenser
GYP SUMP MAKE UP H2O
CONDENSER
FLASH CHAMBER
HEATER
WATER
STEAM
OUT TO ATMOSPHERE
4 EVAPORATOR
42% CLARIFIER
TO DAP PLANT
A, B, C, 6, & 8 EVAPORATORS (NO GRAVITY SETTLER)
42% STORAGE
FLOW DISTRIBUTION BOX
7
5
SAME AS 4 EVAPORATOR
TO SCRUBBER
GRAVITY SETTLER
30% STORAGE
30% CLARIFIER
TO No. 5 EVAPORATOR (SAME AS 4)
TO No. 7 EVAPORATOR (SAME AS 4)
UNDERFLOW FROM 42% CLARIFIER
From No 1. FILTRATE TANK
UNDERFLOW BACK TO DIGESTER



PHOS ACID PLANT

EVAPORATORS (CONTINUED)

Doesn't appear that a PTC was issued for installation of this plant in 1992. Need to look in files to see if PTC was applied for (exempt?) If not determine if NSR review should be done now, prior to finishing the T-S permit.

Emissions Reference Unit Pollutant Estimation

ER-18

Source: S-Si-1

Experimental Silica Plant

The Experimental Silica Extraction Plant is designed to produce high purity synthetic silica. The plant has not operated on a production scale, and was idle for the entire 1994 calendar year. Emissions estimates are approximated from engineering calculations and appear as Appendix A of Permit to Construct 029-0003. The Plant is housed inside a building. As stated in IDAPA 16.01.01.317.01 defining "Insignificant Activities", emissions from building ventilation are insignificant. See Section 317.01(a)(i)(9).

This process is experimental and not intended to operate indefinitely. Nu-West requests that this emissions unit be covered by the Tier I operating permit for the first permit term, although this emissions unit may not exist at the time of the renewal of the Tier I permit.

Until such time as the plant is fully operational and appropriate emissions testing has been conducted, emission limits for the plant shall be established by PTC 029-0003. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 3: PROCESS AND MANUFACTURING OPERATIONS

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-18, S-Si-1, Experimental Silica Plant

STACK DESCRIPTION: P-Si-1

BUILDING DESCRIPTION: Silica

MANUFACTURER: Various

MODEL:

DATE INSTALLED OR LAST MODIFIED: 1992

PROCESSING DATA

PROCESS STREAM	MATERIAL DESCRIPTION	MAXIMUM HOURLY RATE	ACTUAL HOURLY RATE	ACTUAL ANNUAL RATE	UNITS
INPUT					
PRODUCT OUTPUT					
WASTE OUTPUT					
RECYCLE					

POTENTIAL HAPS IN PROCESSING STREAMS

HAPS DESCRIPTION	HAP CAS NUMBER	FRACTION IN INPUT STREAM BY WEIGHT	FRACTION IN PRODUCT STREAM BY WEIGHT	FRACTION IN WASTE STREAM BY WEIGHT	FRACTION IN RECYCLE STREAM BY WEIGHT

SECTION 3, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-Si-la	A-Si-lb
TYPE CODE (FROM APP. A)	053	053
MANUFACTURER	in-house construction	Croll Reynolds
MODEL NUMBER	8"	66 IV
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

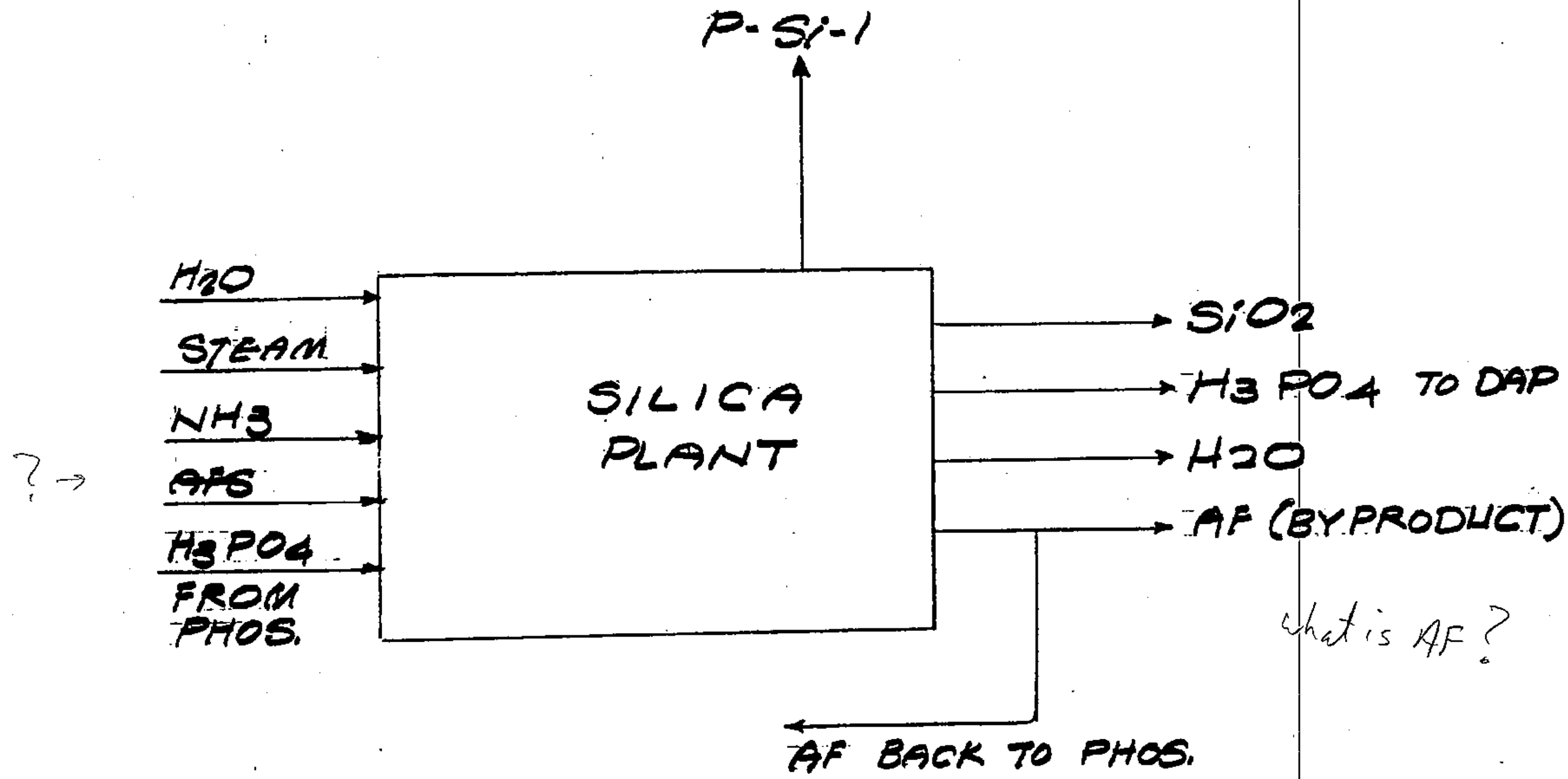
GROUND ELEVATION (FT)	6155
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	04
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	45
STACK EXIT DIAMETER (FT)	0.4
STACK EXIT GAS FLOWRATE (ACFM)	235
STACK EXIT TEMPERATURE (DEG. F)	120

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.


P-Si-1
H2O
STEAM
NH3
?
AFS
H3PO4
FROM PHOS.
SILICA
PLANT
SiO2
H3 PO4 TO DAP
H2O
AF (BY PRODUCT)
what is AF?
AF BACK TO PHOS.

APPENDIX A

Nu-West Industries, Inc. (Conda)

Emission Limits[a] - Hourly (lb/hr) and Annual[b] (ton/yr)

SOURCE DESCRIPTION	NH_3		F	
	lb/hr	T/yr	lb/hr	T/yr
Silica Plant	0.00066	0.0028	0.011	0.046

a As determined by design calculation provided by the company and verified during the permit analysis.

b As determined by multiplying the actual or allowable (if actual is not available) pound per hour emission rate by the allowable hours per year that the process may operate.

Ban

Emissions Reference Unit Pollutant Estimation

ER-19

Source: F-R-1

Fugitive Road Dust

Unpaved Plant roads - Fugitive PM

Estimates for fugitive dust from unpaved roads at the facility are calculated by the empirical expression found in AP-42, 13.2.2.2, based on physical materials routinely shipped in and out of the plant.
$E = k(5.9)\ (s/12)(S/30)\ (W/3)^{0.7}(w/4)^{0.5}(365\text{-}p/365)$ (lb/VMT)
where: E = emission factor
k = particle size multiplier = 0.36 (PM_{10})
s = silt content of road surface material % = 28.5 (rural roads)
S = mean vehicle speed, mph = 5
W = mean vehicle weight = 70,000 lbs = 35 tons
w = mean number of wheels = 24 (75% - 26 wheels; 25% - 18 wheels)
p = number of days with at least 0.01 in. precipitation per year = 120 (figure 11.2.1-1)

A magnesium chloride based dust suppressant is applied to plant roads in the spring of each year and watering is done as needed during dry months. A 50% reduction for this activity will be applied to the emissions estimate.
$E = 0.36(5.9)\ (28.5/12)(5/30)(35/3)^{0.7}(24/4)^{0.5}(365\text{-}120/365) = 7.7$ lbs/VMT
7.7 lbs/VMT * 50% = 3.85 lbs/VMT

Physical material transfer in and out of the plant by truck traffic is as follows:

Of 331,053 tons dry product shipped in CY 1997, approximately 50% is by truck. Each truck is loaded with approximately 30 tons of dry product:
331,053 tons * 50% * each truck/30 tons = 5,518 trucks @ 0.68 mi.

There were 725 trucks (actual count) loaded with wet phosphoric acid in CY 1997:
725 trucks @ 0.68 mi.

Flocculent products consumed at the plant were approximately 78 tons/yr for 1997:
156,000 lbs / [2500 gal/truck * 7.8 lb/gal] = 8 trucks @ 0.68 mi.

Boiler water treatment chemicals (NaOH) is approximately 630 tons/yr:
630 tons NaOH * each truck/30 tons NaOH = 21 trucks @ 0.68 mi.

Sulfuric acid shipped into the plant accounted for 1,387 trucks @ 0.68 mi.

Coal usage for 1996 was 3,301 tons:
3,301 tons coal * each truck/30 ton coal = 110 trucks @ 1.83 mi.

Total Vehicle Miles Traveled (VMT) = 5,409
5,409 VMT/yr * 3.85 lbs/VMT * yr/8,760 hrs = 2.38 lb/hr

Traffic not accounted for in this estimate includes, but not limited to: Common-carriers, UPS and other mail service vehicles, local service vehicles, plant personnel vehicles, plant maintenance vehicles, visitor vehicles, and any other non-routine traffic from vehicles handling any materials not directly essential to operations at the facility.

Paved Plant roads - Fugitive PM

Estimates for fugitive dust from paved roads at the facility are calculated by the empirical expression found in AP-42, 13.2.1.2, based on physical materials routinely shipped in and out of the plant.

$E = k\ (sL/2)^{0.65}\ (W/3)^{1.5}$

where: E = particulate emission factor (lb/VMT)

k = base emission factor for particle size range and units of interest = 0.016

sL = silt loading = 7.4 (comparative value as per Table 13.2.1-1, AP-42, 1/95)

E = 0.016 (7.4/2)0.65 (35/3)1.5 = 1.49 lb/VMT

Total Vehicle Miles Traveled (VMT) = 5,409

5,409 VMT/yr * 1.49 lbs/VMT * yr/8,760 hrs = 0.92 lb/hr

Traffic estimates for goods and services from 1997 are used soley for the purpose of approximating emissions. To maximize operational flexibility concerning monitorable traffic in and out of the facility which may contribute to fugitive road dust emissions, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 8: FUGITIVE ROAD DUST SOURCES

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

~~PART A: GENERAL INFORMATION Fugitive Road Dust (Entire Facility)~~

ROAD DESCRIPTION: ER-19, F-R-1,

PAVED? (Y/N): N

LENGTH (FT):

WIDTH (FT):

BEGINNING COORDINATES: UTM-X (KM) | UTM-Y (KM)

END COORDINATES: UTM-X (KM) | UTM-Y (KM)

DATA FOR ALL ROADS – PAVED AND UNPAVED * See ER-19, Emissions Reference Unit Pollutant Estimation

VEHICLE DESCRIPTION	NUMBER OF ROUNDTRIPS PER DAY	VEHICLE MILES TRAVELLED PER DAY	NUMBER OF DAYS PER YEAR USED	AVERAGE VEHICLE SPEED (MPH)	SURFACE SILT CONTENT (% WEIGHT)

DATA FOR ALL ROADS – PAVED AND UNPAVED

DATA: UNPAVED ROADS

VEHICLE DESCRIPTION	VEHICLE EMPTY WEIGHT (TONS)	VEHICLE FULL WEIGHT (TONS)	NUMBER OF WHEELS PER VEHICLE	NUMBER OF DAYS >0.01 INCHES PRECIPITATION

DATA: PAVED ROADS

NUMBER OF LANES	INDUSTRIAL AUGMENTATION FACTOR	DUST LOADING (LB/MILE)

ROAD DUST CHEMICALS

HAP DESCRIPTION	HAP CAS NUMBER	HAP FRACTION IN ROAD DUST BY WEIGHT

SECTION 8, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC-FEB	
MAR-MAY	
JUN-AUG	
SEP-NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

FUGITIVE DUST CONTROL DATA

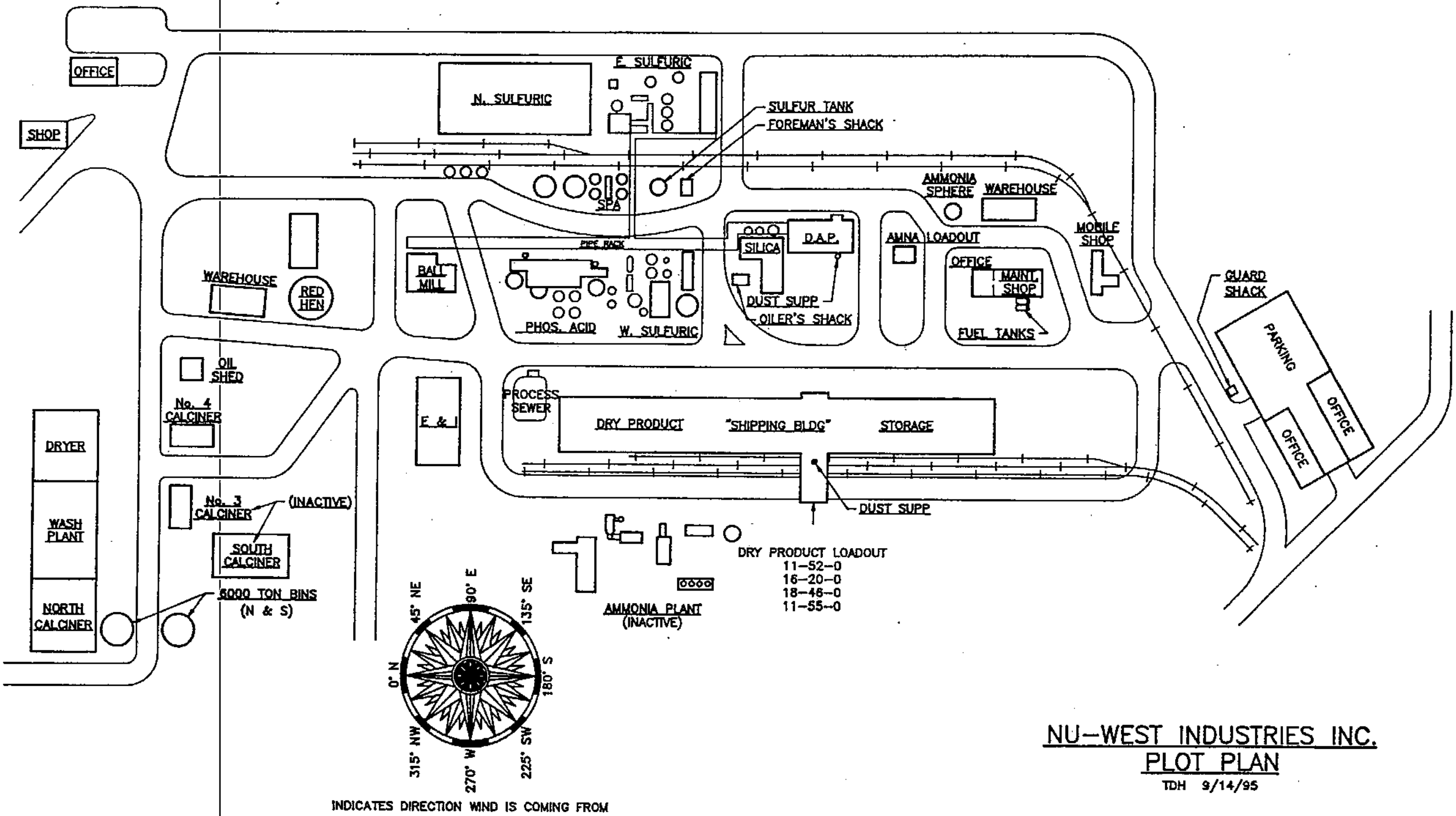
PARAMETER	PRIMARY	SECONDARY
CONTROL DESCRIPTION	Dust Suppressant	
CONTROL CODE (APPENDIX A)	062-024 MgCl solution 30-34%	
MINIMUM DAILY APPLICATIONS OF CONTROL		
MAXIMUM DAILY APPLICATIONS OF CONTROL		
AVERAGE ANNUAL APPLICATIONS OF CONTROL	1 app/yr	
AMOUNT APPLIED (UNITS/APPLICATION)	0.2 gal/yd^2	
UNITS FOR APPLICATION AMOUNT		

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM-10							
LEAD							

NOTE: IN LBS/UNIT. USE UNITS OF VEHICLE MILES TRAVELLED (VMT).

It is apparent the dry fertilizer plant uses ammonia yet no ammonia emi[ssions] are estimated. Are there actually zero NH_3 emiss[ions] from this facility? including the load[ing] is even



NU-WEST INDUSTRIES INC.
PLOT PLAN
TDH 9/14/95

Emissions Reference Unit Pollutant Estimation

ER- 20

Sources: S-PA-2a, S-Pa-2b

Thermal Fluid Heaters

Phosphoric acid is upgraded from 52% P_2O_5 to 70% P_2O_5 using special evaporators with two (2) gas fired thermal fluid heaters to provide the high temperatures required. Estimated actual emissions from these two (2) thermal fluid heaters is as follows:

Total combined input capacity = 38,000,000 Btu/hr

38,000,000 Btu/hr * 1 SCF natural gas/1000 Btu = 38,000 SCF/hr

38,000 cfh * 13.8 lbs PM/10^6 cf = 0.52 lb PM/hr

38,000 cfh * 0.6 lbs SO_2/10^6 cf = 0.02 lb SO_2/hr

38,000 cfh * 35 lbs CO/10^6 cf = 1.33 lb CO/hr

38,000 cfh * 140 lbs NO_x/10^6 cf = 5.32 lb NO_x/hr

38,000 cfh * 2.78 lbs VOC/10^6 cf = 0.11 lb VOC /hr

Figures shown represent emissions derived from AP-42 factors using maximum design input values. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

ECTION 2: FUEL BURNING EQUIPMENT

EQ USE ONLY

Q PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
Q BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
Q SEGMENT CODE					

ART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-20, S-Pa-2a, #1 Thermal Fluid Heater

ACK DESCRIPTION: P-Pa-2a

BUILDING DESCRIPTION: near Phos Acid

NUFACTURER: First Thermal   MODEL: 1600-6-2HEHC   DATE INSTALLED OR LAST MODIFIED: 1995

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

LION BTU/HR: 20.8   1000 LBS STEAM/HR: kW: hP:

BURNER TYPE (SEE NOTE BELOW): 09   PERCENT USED FOR PROCESS: 100

PERCENT USED FOR SPACE HEAT:

FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (SEE NOTE BELOW)	01			
CENT SULFUR				
ERCENT ASH				
CENT NITROGEN				
ERCENT CARBON				
CENT HYDROGEN				
ERCENT MOISTURE				
CONTENT (U/UNIT)				
UM HOURLY BUSTION RATE (UNITS/HR)				
ORMAL ANNUAL COMBUSTION RATE (UNITS/YR)				

: BURNER TYPE – 01) SPREADER STOKER; 02) CHAIN OR TRAVELING GRATE; 03) HAND FIRED; 04) CYCLONE FURNACE;
05) WET BOTTOM (PULVERIZED COAL); 06) DRY BOTTOM (PULVERIZED COAL);
07) UNDERFEED STOKER; 08) TANGENTIALLY FIRED; 09) HORIZONTALLY FIRED; 10) AXIALLY FIRED;
11) OTHER (SPECIFY)

FUEL CODES – 01) NATURAL GAS; 02) #1 OR #2 FUEL OIL; 03) #4 FUEL OIL; 04) #5 OR #6 FUEL OIL; 05) USED OIL
06) WOOD CHIPS; 07) WOOD BARK; 08) WOOD SHAVINGS; 09) SANDER DUST;
10) SUBBITUMINOUS COAL; 11) BITUMINOUS COAL; 12) ANTHRACITE COAL; 13) LIGNITE COAL
14) PROPANE; 15) OTHER (SPECIFY)

SECTION 2, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC – FEB	
MAR – MAY	
JUN – AUG	
SEP – NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE	A-Pa-2a	
TYPE CODE (FROM APP. A)	033	
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	6155
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	26
STACK EXIT DIAMETER (FT)	2.5
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	600

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM-10							
SO_2							
CO							
NO_x							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

SECTION 2: FUEL BURNING EQUIPMENT

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	ER-20, S-Pa-2b, #2 Thermal Fluid Heater
STACK DESCRIPTION	P-Pa-2b
BUILDING DESCRIPTION	near Phos·Acid

MANUFACTURER: First Thermal — MODEL: 1400-6-2HEHC — DATE INSTALLED OR LAST MODIFIED: 1984

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

MILLION BTU/HR: 17.48 — 1000 LBS STEAM/HR: — kW: — hP:

BURNER TYPE (SEE NOTE BELOW): 09 — PERCENT USED FOR PROCESS: 100

PERCENT USED FOR SPACE HEAT:

FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (SEE NOTE BELOW)	01			
PERCENT SULFUR				
PERCENT ASH				
PERCENT NITROGEN				
PERCENT CARBON				
PERCENT HYDROGEN				
PERCENT MOISTURE				
HEAT CONTENT (BTU/UNIT)				
MAXIMUM HOURLY COMBUSTION RATE (UNITS/HR)				
NORMAL ANNUAL COMBUSTION RATE (UNITS/YR)				

NOTES: BURNER TYPE – 01) SPREADER STOKER; 02) CHAIN OR TRAVELING GRATE; 03) HAND FIRED; 04) CYCLONE FURNACE;
05) WET BOTTOM (PULVERIZED COAL); 06) DRY BOTTOM (PULVERIZED COAL);
07) UNDERFEED STOKER; 08) TANGENTIALLY FIRED; 09) HORIZONTALLY FIRED; 10) AXIALLY FIRED;
11) OTHER (SPECIFY)

FUEL CODES – 01) NATURAL GAS; 02) #1 OR #2 FUEL OIL; 03) #4 FUEL OIL; 04) #5 OR #6 FUEL OIL; 05) USED OIL
06) WOOD CHIPS; 07) WOOD BARK; 08) WOOD SHAVINGS; 09) SANDER DUST;
10) SUBBITUMINOUS COAL; 11) BITUMINOUS COAL; 12) ANTHRACITE COAL; 13) LIGNITE COAL
14) PROPANE; 15) OTHER (SPECIFY)

SECTION 2, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC – FEB	
MAR – MAY	
JUN – AUG	
SEP – NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)	000	
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	6155
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	21
STACK EXIT DIAMETER (FT)	2.5
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	500

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	REFERENCE
PM							
PM-10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

Emissions Reference Unit Pollutant Estimation

ER- 21

Source: S-C-1

Coal Combustion in Calciners

Coal is used by Nu-West to supplement combustion of naturally occurring organic material contained in the phosphate ore during the calcining process. When the naturally occurring organics will support combustion independently, coal is not added. A total of 18,816 tons of coal were used in the calcining process in FY 1994.

All combustion gases from the calciner pass through wet venturi scrubbers before exiting to the exhaust stack.

AP-42, 1.1.1 shows emission factors for large industrial and utility boilers, wherein coal is burned as the only combustion material.

Although AP-42 emission factors for coal combustion are not directly related to our calciner situation, the calculations below follow the emission factors for a fluidized bed combustor, circulating bed, which from the narrative in AP-42 most resembles the fluidized-bed calcining process of all those configurations mentioned in table 1.1-1. (ver. 7/93).

Particulates

Particulates from coal combustion are accounted for in the estimated particulate emissions from the calciners. PM → need to follow up on this

Sulfur oxides

31(S) lbs/ton coal
"S" = 0.9% for the coal used at the calciner
31(0.009) lbs/ton coal * 18,816 tons coal * ton/2000 lbs = **2.62 tons SO_x**

Nitrogen oxides

3.9 lbs NO_x/ton coal * 18,816 tons coal * ton/2000 lbs = **36.7 tons NO_x**

Carbon monoxide

18 lbs CO/ton coal * 18,816 tons coal * ton/ 2000 lbs = 169 tons CO

Non-methane TOCs

0.05 lbs TOC/ton coal * 18,816 tons coal * ton/2000 lbs = **0.47 tons TOC**

Methane

0.06 lbs VOC/ton coal * 18,816 tons coal * ton/2000 lbs = **0.56 tons VOC**

AP-42 emission factors and data used from calendar year 1994 or fiscal year 1994 are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

ECTION 2: FUEL BURNING EQUIPMENT

EQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
EQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

ART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	ER-21, S-C-1, Coal Combustion in Calciners
ACK DESCRIPTION	P-Ca-1/2 or P-Cb-1
BUILDING DESCRIPTION	#4 Calciner or North Calciner

ANUFACTURER: Dorr Oliver   MODEL: [ ]   DATE INSTALLED OR LAST MODIFIED: [ ]

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

LLION BTU/HR	NA	1000 LBS STEAM/HR		kW		hP	

BURNER TYPE (SEE NOTE BELOW): 11   PERCENT USED FOR PROCESS: 100

PERCENT USED FOR SPACE HEAT: [ ]

FUEL DATA   * See ER-21, Emissions Reference Unit Pollutant Estimation

RAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (SEE NOTE BELOW)			10	
RCENT SULFUR				
PERCENT ASH				
RCENT NITROGEN				
PERCENT CARBON				
RCENT HYDROGEN				
PERCENT MOISTURE				
T CONTENT (BTU/UNIT)				
IMUM HOURLY MBUSTION RATE (UNITS/HR)				
NORMAL ANNUAL MBUSTION RATE (UNITS/YR)				

ES: BURNER TYPE – 01) SPREADER STOKER; 02) CHAIN OR TRAVELING GRATE; 03) HAND FIRED; 04) CYCLONE FURNACE;
05) WET BOTTOM (PULVERIZED COAL); 06) DRY BOTTOM (PULVERIZED COAL);
07) UNDERFEED STOKER; 08) TANGENTIALLY FIRED; 09) HORIZONTALLY FIRED; 10) AXIALLY FIRED;
11) OTHER (SPECIFY) Coal is blended with ore

FUEL CODES – 01) NATURAL GAS; 02) #1 OR #2 FUEL OIL; 03) #4 FUEL OIL; 04) #5 OR #6 FUEL OIL; 05) USED OIL
06) WOOD CHIPS; 07) WOOD BARK; 08) WOOD SHAVINGS; 09) SANDER DUST;
10) SUBBITUMINOUS COAL; 11) BITUMINOUS COAL; 12) ANTHRACITE COAL; 13) LIGNITE COAL
14) PROPANE; 15) OTHER (SPECIFY) [ ]

SECTION 2, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

* See ER-5 and ER-6

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	(TONS/YR)	REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

Emissions Reference Unit Pollutant Estimation

ER- 22

Source: F-Op-1

Ore piles - Fugitive PM

Mr. Camille Ajaka, of IDEQ, suggested in a telephone conversation on April 26, 1995, with Mr. Monty Johnson, of Nu-West, that Nu-West use AP-42 Table 8.19.1-1 (ver. 7/93) to estimate fugitive particulate emissions from our ore storage piles. The factor suggested is 13.2 lbs PM/acre/day.

The discussion at 8.19.1.2 (ver. 7/93) defines "wet" material as containing 1.5 to 4.0 percent moisture. The discussion further states that wet suppression techniques may "reduce loading and wind erosion emissions from storage piles of various materials 80 to 90 percent".

The ore piles at the Nu-West facility average 10.5% moisture (more than double the defined "wet" moisture content). The ore piles are continually reshaped to accommodate additional ore loading onto the piles. This continual movement of the "wet" ore assures that the outer layer of ore is not allowed to evaporate moisture to the point of becoming "dry". Therefore, a necessary control efficiency credit must be given:

1.32[c] lbs PM/acre/day * 13.3 acres * day/24 hrs = 0.73 lbs PM/hr

Data used from calendar year 1994 or fiscal year 1994 are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

[c] reflects a 90% control efficiency credit

SECTION 7: SOLID MATERIAL TRANSPORT, HANDLING, AND STORAGE

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	ER-22, F-Op-1, Fugitive Dust from Ore Piles
STACK DESCRIPTION	NA
BUILDING DESCRIPTION	North end of Facility
DATE INSTALLED OR LAST MODIFIED	1965
MATERIAL DESCRIPTION	Phosphate ore and coal

MATERIAL TRANSFER RATES

MAXIMUM HOURLY TRANSFER RATE (UNITS/HOUR)	NA See ER-1
NORMAL HOURLY TRANSFER RATE (UNITS/HOUR)	
NORMAL ANNUAL TRANFER RATE (UNITS/YEAR)	
UNITS OF MEASURE	

BELT CONVEYOR/VEHICLE TRANSFER

NUMBER OF TRANSFERS		MATERIAL MOISTURE CONTENT (WEIGHT PERCENT)		MAXIMUM HOURLY WIND SPEED (MPH)		AVERAGE HOURLY WIND SPEED (MPH)	

CONVEYORS ENCLOSED? (Y/N)		CONVEYORS IN BUILDINGS? (Y/N)	
TRANSFERS ENCLOSED? (Y/N)		TRANSFERS IN BUILDINGS? (Y/N)	

PNEUMATIC CONVEYOR TRANSFERS

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT)			
PRIMARY SEPARATOR TYPE		PRIMARY SEPARATOR PERCENT EFFICIENCY	
SECONDARY SEPARATOR TYPE		SECONDARY SEPARATOR PERCENT EFFICIENCY	

MATERIAL STORAGE DATA

PILE? (Y/N)	Y	STORAGE CAPACITY		PILE LENGTH (FT)	
SILO? (Y/N)		STORAGE CAPACITY UNITS		PILE WIDTH (FT)	
OTHER STORAGE TYPE DESCRIPTION	13.3 total acres			PILE HEIGHT (FT)	

MATERIAL DATA

HAP DESCRIPTION	HAP CAS NUMBER	HAP FRACTION IN MATERIAL BY WEIGHT

SECTION 7, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC–FEB	
MAR–MAY	
JUN–AUG	
SEP–NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

* See ER-22, Emissions Reference Unit Pollutant Estimation

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM		13.2	90	0.7			
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

Emissions Reference Unit Pollutant Estimation

Is this related to ER-12 & Flow diagram for "Dry Fertilizer Transfer, Storage & Loadout"

ER- 23

Source: F-Fc-1

~~**Dry Product Sizing and Transfer**~~

1994 Dry Product production was 263,031 tons in 4591 hours. The following estimations are based on factors given in AP-42, Table 8.5.3-1:

263,031 tons/4591 hours * 0.06 lbs Particulate /ton = 3.4 lbs PM/hr

AP-42 emission factors and data used from calendar year 1994 or fiscal year 1994 are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 7: SOLID MATERIAL TRANSPORT, HANDLING, AND STORAGE

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-23, F-Fc-1, Dry Product Sizing and Transfer

STACK DESCRIPTION: NA

BUILDING DESCRIPTION: DAP and "Shipping" Bldg.

DATE INSTALLED OR LAST MODIFIED: 1965

MATERIAL DESCRIPTION: Dry Product Fertilizer

MATERIAL TRANSFER RATES

MAXIMUM HOURLY TRANSFER RATE (UNITS/HOUR): NA See ER-23

NORMAL HOURLY TRANSFER RATE (UNITS/HOUR):

NORMAL ANNUAL TRANFER RATE (UNITS/YEAR):

UNITS OF MEASURE:

BELT CONVEYOR/VEHICLE TRANSFER

NUMBER OF TRANSFERS:

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT):

MAXIMUM HOURLY WIND SPEED (MPH):

AVERAGE HOURLY WIND SPEED (MPH):

CONVEYORS ENCLOSED? (Y/N)

CONVEYORS IN BUILDINGS? (Y/N)

TRANSFERS ENCLOSED? (Y/N)

TRANSFERS IN BUILDINGS? (Y/N)

PNEUMATIC CONVEYOR TRANSFERS

MATERIAL MOISTURE CONTENT (WEIGHT PERCENT)

PRIMARY SEPARATOR TYPE

PRIMARY SEPARATOR PERCENT EFFICIENCY

SECONDARY SEPARATOR TYPE

SECONDARY SEPARATOR PERCENT EFFICIENCY

MATERIAL STORAGE DATA

PILE? (Y/N)

STORAGE CAPACITY

PILE LENGTH (FT)

SILO? (Y/N)

STORAGE CAPACITY UNITS

PILE WIDTH (FT)

OTHER STORAGE TYPE DESCRIPTION

PILE HEIGHT (FT)

MATERIAL DATA

HAP DESCRIPTION	HAP CAS NUMBER	HAP FRACTION IN MATERIAL BY WEIGHT

SECTION 7, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER

DEC – FEB	
MAR – MAY	
JUN – AUG	
SEP – NOV	

OPERATING SCHEDULE

HOURS/DAY	
DAYS/WEEK	
WEEKS/YEAR	

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	REFERENCE
PM		0.06	NA	3.4			
PM-10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

Emissions Reference Unit Pollutant Estimation

ER-24

Source: N-G-1

Natural Gas Usage

Natural gas consumption for the entire facility in calendar year 1997 was 13,009,350 therms.

1 therm = 100,000 Btu

13,009,350 therms * 100,000 Btu/therm * ft^3/1000 Btu = 1.30 E9 ft^3 gas

(Reference AP-42, Table 1.4-1, ver. 1/95.)

1.30 E9 ft^3 gas *140 lbs $NO_X/10^6\ ft^3$ * ton/2000 lbs = 91.07 tons NO_X

1.30 E9 ft^3 gas * 13.7 lbs PM(total)/$10^6\ ft^3$ * ton/2000 lbs = 8.90 tons PM

1.30 E9 ft^3 gas * 0.6 lbs $SO_2/10^6 ft^3$ * ton/2000 lbs = 0.39 tons SO_2

1.30 E9 ft^3 gas * 35 lbs CO/$10^6 ft^3$ * ton/2000 lbs = 22.76 tons CO

1.30 E9 ft^3 gas * 5.8 lbs TOC/$10^6\ ft^3$ * ton/2000 lbs = 3.77 tons TOC

These calculations represent natural gas combustion as if emanating from small industrial boilers only. A major portion of Nu-West's natural gas usage is within equipment and processes relative to phosphate products manufacture, including low-NOx natural gas fired devices. Another major portion is used in building heaters which are exempt from regulation. Nu-West has not yet installed the numerous gas meters necessary to accurately characterize the actual use of the total natural gas consumed at the facility, however these installations are planned in the future. Therefore, Nu-West is grossly over-estimating these emissions.

AP-42 emission factors and data used from calendar year 1997 are used soley for the purpose of approximating emissions. To maximize operational flexibility, Nu-West requests that IDEQ not establish an annual emission limit for this source.

SECTION 2: FUEL BURNING EQUIPMENT

DEQ USE ONLY

DEQ PLANT ID CODE		DEQ PROCESS CODE		DEQ STACK ID CODE	
DEQ BUILDING ID CODE		PRIMARY SCC		SECONDARY SCC	
DEQ SEGMENT CODE					

PART A: GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION: ER-24, Natural Gas Usage (Plant-wide)

STACK DESCRIPTION: N-G-1

BUILDING DESCRIPTION: Various locations throughout plant

MANUFACTURER: Various MODEL: DATE INSTALLED OR LAST MODIFIED:

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

MILLION BTU/HR: 148.5 1000 LBS STEAM/HR: kW: hP:

BURNER TYPE (SEE NOTE BELOW): PERCENT USED FOR PROCESS: 80%+

OK PERCENT USED FOR SPACE HEAT: 20%-

FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (SEE NOTE BELOW)	01			
PERCENT SULFUR				
PERCENT ASH				
PERCENT NITROGEN				
PERCENT CARBON				
PERCENT HYDROGEN				
PERCENT MOISTURE				
HEAT CONTENT (BTU/UNIT)				
MAXIMUM HOURLY COMBUSTION RATE (UNITS/HR)				
NORMAL ANNUAL COMBUSTION RATE (UNITS/YR)				

NOTES: BURNER TYPE – 01) SPREADER STOKER; 02) CHAIN OR TRAVELING GRATE; 03) HAND FIRED; 04) CYCLONE FURNACE;

05) WET BOTTOM (PULVERIZED COAL); 06) DRY BOTTOM (PULVERIZED COAL);

07) UNDERFEED STOKER; 08) TANGENTIALLY FIRED; 09) HORIZONTALLY FIRED; 10) AXIALLY FIRED;

11) OTHER (SPECIFY)

FUEL CODES – 01) NATURAL GAS; 02) #1 OR #2 FUEL OIL; 03) #4 FUEL OIL; 04) #5 OR #6 FUEL OIL; 05) USED OIL

06) WOOD CHIPS; 07) WOOD BARK; 08) WOOD SHAVINGS; 09) SANDER DUST;

10) SUBBITUMINOUS COAL; 11) BITUMINOUS COAL; 12) ANTHRACITE COAL; 13) LIGNITE COAL

14) PROPANE; 15) OTHER (SPECIFY)

SECTION 2, PART B

OPERATING DATA

PERCENT FUEL CONSUMPTION PER QUARTER		OPERATING SCHEDULE	
DEC–FEB		HOURS/DAY	
MAR–MAY		DAYS/WEEK	
JUN–AUG		WEEKS/YEAR	
SEP–NOV			

POLLUTION CONTROL EQUIPMENT

PARAMETER	PRIMARY	SECONDARY
TYPE		
TYPE CODE (FROM APP. A)		
MANUFACTURER		
MODEL NUMBER		
PRESSURE DROP (IN. OF WATER)		
WET SCRUBBER FLOW (GPM)		
BAGHOUSE AIR/CLOTH RATIO (FPM)		

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	
HOOD TYPE (FROM APP. B)	
MINIMUM FLOW (ACFM)	
PERCENT CAPTURE EFFICIENCY	
BUILDING HEIGHT (FT)	
BUILDING LENGTH (FT)	
BUILDING WIDTH (FT)	

STACK DATA

GROUND ELEVATION (FT)	
UTM X COORDINATE (KM)	
UTM Y COORDINATE (KM)	
STACK TYPE (SEE NOTE BELOW)	
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	
STACK EXIT DIAMETER (FT)	
STACK EXIT GAS FLOWRATE (ACFM)	
STACK EXIT TEMPERATURE (DEG. F)	

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NUMBER	EMISSION FACTOR (SEE NOTE BELOW)	PERCENT CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (LBS/HR)	ALLOWABLE EMISSIONS (TONS/YR)	ALLOWABLE EMISSIONS REFERENCE
PM							
PM–10							
SO2							
CO							
NOx							
VOC							
LEAD							

NOTES: STACK TYPE – 01) DOWNWARD; 02) VERTICAL (UNCOVERED); 03) VERTICAL (COVERED); 04) HORIZONTAL; 05) FUGITIVE

EMISSION FACTOR – IN LBS/UNITS. PLEASE USE SAME HOURLY UNITS GIVEN IN FUEL DATA SECTION.

Supplement A to Section III

Source Code List

Emission Reference unit #	Source Code	Source Name	Location
ER-1	F-Oa-1	Ore unloading and transfer	North end of Facility
ER-2	F-Ob-1	Ore transfer to Wash Plant	North end of Facility
ER-3	S-W-1	Wash Plant	Dryer, Wash Plant, N. Calciner building
ER-4	S-D-1	Rock Dryer	Dryer, Wash Plant, N. Calciner building
ER-5	S-Cb-1	North Calciner	Dryer, Wash Plant, N. Calciner building
ER-6	S-Ca-1	#4 Calciner	#4 Calciner
ER-7	F-Oc-1	#4 Calciner Feed	North end of Facility
ER-8	F-Oc-2	North Calciner Feed	Dryer, Wash Plant, N. Calciner building
ER-9	F-Cc-1	Calcined Ore Transfer	North end of Facility
ER-10	S-B-1; S-B-2	Ball Mill(s) #1 & #2	Ball Mill
ER-11	S-Fa-1, 2, & 3	DAP Plant	D.A.P.
ER-12	F-Fb-1 & 2	Dry Fertilizer Loadout	"Shipping Bldg."
ER-13	S-Pb-1	Super Acid Filtration	SPA
ER-14	S-Se-1	East Sulfuric Acid Plant	E. Sulfuric
ER-15	S-Nb-1	"B-5" Nebraska Boiler	N. Sulfuric
ER-16	S-Cd-1	Ground Rock Silo	Phos. Acid
ER-17	S-Pa-1	Phosphoric Acid Plant	Phos. Acid
ER-18	S-Si-1	Experimental Silica Plant	Silica
ER-19	F-R-1	Fugitive Road Dust	Facility
ER-20	S-Pa-2a & 2b	Thermal Fluid Heaters	Phos. Acid
ER-21	S-C-1	Coal Combustion in Calciners	#4 Calciner or N. Calciner
ER-22	F-Op-1	Fugitive Dust from Ore Piles	North end of Facility
ER-23	F-Fc-1	Dry Product Sizing and Transfer	D.A.P.
ER-24	N-G-1	Natural Gas Usage	Plant-wide

Supplement B to Section III

Sources and Corresponding Abatement Devices and Stacks

Refer to Supplement A to Section III for emissions information.

F-Oa-1, Ore Unloading and Transfer

No abatement devices in this area. No stacks.

F-Ob-1, Ore Transfer to Wash Plant

No abatement devices in this area. No stacks.

S-W-1, Wash Plant

Abatement devices not applicable in this area - wet process. Several steam vents to atmosphere.

S-D-1, Rock Dryer

A-D-1a	Multiple Cyclone (dry)
A-D-1b	Cyclonic Spray Tower (water)
A-D-2	Small cyclonic (water) scrubber to control fugitive dust from transfer device.
A-D-3	Small cyclonic (water) scrubber to control fugitive dust from transfer device.
P-D-1	Exhaust stack from A-D-1b
P-D-2	Vent to atmosphere from A-D-2
P-D-3	Vent to atmosphere from A-D-3

S-Cb-1, North Calciner

A-Cb-1a	Multiple Cyclone (dry)
A-Cb-1b	Multiple Cyclone (dry)
A-Cb-1c	Venturi Scrubber (water)
P-Cb-1	Exhaust stack from A-Cb-1c

S-Cb-2, North Calciner Aftercooler

A-Cb-2a	Cyclone (dry)
A-Cb-2b	Small cyclonic (water) scrubber to control fugitive dust from transfer device.
P-Cb-2	Vent to atmosphere from A-Cb-2b

S-Ca-1, #4 Calciner

A-Ca-1a	Multiple Cyclone (dry)
~~A-Ca-1b~~	~~Multiple Cyclone (dry)~~
A-Ca-1c	Venturi Scrubber (water)
P-Ca-1	Exhaust stack from A-Ca-1c

S-Ca-2, #4 Calciner Aftercooler

A-Ca-2a	Cyclone (dry)
A-Ca-2b	Venturi Scrubber (water)

F-Oc-1, #4 Calciner Feed

No abatement devices in this area. No stacks.

F-Oc-2, North Calciner Feed

No abatement devices in this area. No stacks. The North Calciner Feed system is totally housed inside a building.

F-Cc-1, Calcined Ore Transfer

A-Cc-1a	Baghouse to control fugitive dust from transfer points.
A-Cc-1b	Baghouse to control fugitive dust from transfer points.
A-Cc-1c	Baghouse to control fugitive dust from transfer points.
A-Cc-1d	Baghouse to control fugitive dust from transfer points.
A-Cc-1e	Baghouse to control fugitive dust from transfer points.
P-Cc-1a	Exhaust vent from A-Cc-1a
P-Cc-1b	Exhaust vent from A-Cc-1b
P-Cc-1c	Exhaust vent from A-Cc-1c
P-Cc-1d	Exhaust vent from A-Cc-1d
P-Cc-1e	Exhaust vent from A-Cc-1e

S-B-1 & S-B-2, Ball Mill

A-B-1a	Cyclone (dry)
A-B-1b	Multiple Cyclone (dry)
A-B-1c	Puff bag filter (exposed bags)
A-B-1d/3	Baghouse (for S/A-B-1_ system)
A-B-2a	Cyclone (dry)
A-B-2b	Multiple Cyclone (dry)
A-B-2c	Multiple Cyclone (dry)
A-B-2d/3	Baghouse (for S/A-B-2_ system)
P-B-1/3	Exhaust vent from A-B-1d/3
P-B-2/3	Exhaust vent from A-B-2d/3

S-Fa-1, S-Fa-2, & S-Fa-3, DAP Plant

A-Fa-1a	Venturi Scrubber (wet, Phosphoric Acid)
A-Fa-1b	Spray tower scrubber (water)
A-Fa-2a	Multiple Cyclone (dry)
A-Fa-2b	Venturi Scrubber (wet, Phosphoric Acid)
A-Fa-3a	Multiple Cyclone (dry)
A-Fa-3b	Venturi Scrubber (wet, Phosphoric Acid)
A-Fa-4a	Multiple Cyclone (dry)
A-Fa-4b	Venturi Scrubber (wet, Phosphoric Acid)
P-Fa-1/2/3/4	Common exhaust stack from all A-Fa-_ abatement devices

F-Fb-1 & F-Fb-2, Dry Fertilizer Loadout

No abatement devices in this area. No stacks.

S-Pb1, Super Acid Filtration

No abatement devices in this area.

P-Pb-1 Exhaust vent from fan used to convey fmues away from worker area.

S-Se-1 East Sulfuric Acid Plant

Double contact sulfuric acid process.

P-Se-1 Exhaust stack from process

S-Nb-1, B-5 Nebraska Boiler

A-Nb-1 Low NO_X package boiler.

P-Nb-1 Exhaust stack from S-Nb-1

S-Cd-1, Ground Rock Silo

A-Cd-1a	Baghouse
A-Cd-1b	Baghouse
P-Cd-1	Common exhaust stack from A-Cd-1a and A-Cd-1b

S-Pa-1, Phosphoric Acid Plant

A-Pa-1	Cyclonic Spray Tower
P-Pa-1	Exhaust stack from A-Pa-1

S-Si-1, Experimental Silica Plant

A-Si-1a	Venturi Scrubber (wet, Phosphoric Acid)
A-Si-1b	Venturi Scrubber (water)
P-Si-1	Exhhaust stack from A-Si-1a and A-Si-1b

F-R-1, Fugitive Road Dust

Pollution abatement by application of dust suppressant to unpaved road surfaces.

S-Pa-2a & S-Pa-2b, Thermal Fluid Heaters

A-Pa-2a	S-Pa-2a is equipped to control O_2 in combustion air.
P-Pa-2a	Exhaust stack from S-Pa-2a
P-Pa-2b	Exhaust stack from S-Pa-2b

S-C-1, Coal Combustion in Calciners

Abatement devices listed above at S-Cb-1 and S-Ca-1.

F-Op-1, Fugitive Dust from Ore Piles

No abatement devices in this area. No stacks.

F-Fc-1, Dry Product Sizing and Transfer

No abatement devices in this area. No stacks.

Supplement C to Section III

Insignificant Activities

a. Categorically exempt insignificant activities.	Present at Nu-West?
(1) Blacksmith forges	No
(2) Mobile transport tanks on vehicles except for those containing asphalt.	Yes
(3) Natural gas pressure regulator vents.	No
(4) Storage tanks, reservoirs and pumping and handling equipment of any size, limited to soaps, lubricants, hydraulic fluid, vegetable oil, grease, animal fat, aqueous salt solutions or other materials and processes using appropriate lids and covers where there is no generation of objectionable odor or air borne particulate matter.	Yes
(5) Pressurized storage of oxygen, carbon dioxide, air, or inert gas.	Yes
(6) Storage of solid material, dust-free handling.	Yes
(7) Boiler water treatment operations, not including cooling towers.	Yes
(8) Vents from continuous emission monitors and other analyzers.	Yes
(9) Vents from rooms, buildings and enclosures that contain permitted emissions units or activities from which local ventilation, controls, and separate exhaust are provided.	Yes
(10) Internal combustion engines for propelling or powering a vehicle.	Yes
(11) Recreational fireplaces including the use of barbecues, campfires and ceremonial fires.	Yes
(12) Brazing , soldering, and welding equipment and oxygen-hydrogen cutting torches for use in cutting metal wherein components of the metal do not generate HAPs or HAP precursors.	Yes
(13) Atmospheric generators used in connection with metal heat treating processes.	No
(14) Metal finishing or cleaning using tumblers.	No
(15) Drop hammers or hydraulic presses for forging or metalworking.	No
(16) Electrolytic deposition, used to deposit brass, bronze, copper, iron, tin, zinc, precious and other metals not listed as t he parents of HAPs.	No
(17) Equipment used for surface coating, painting, dipping, except those that emit VOC or HAPs	Yes
(18) Process water filtration systems	No
(19) Portable electric generators that can be moved by hand, as defined in this section.	Yes
(20) Plastic and resin curing equipment, excluding FRP.	No
(21) Extrusion equipment, metals, minerals, plastics, grain or wood..	No
(22) Presses and vacuum forming, for curing rubber and plastic products or for laminating plastics	No
(23) Roller mills and calendars, rubber and plastic	No
(24) Conveying and storage of plastic pellets	No
(25) Plastic compression, injection and transfer molding and extrusion, rotocasting, pultrusion, blowmolding, excluding acrylics, PVC, polystyrene and related copolymers and the use of plasticizer. Only oxygen, carbon dioxide, nitrogen, air or inert gas allowed as blowing agent	No
(26) Plastic pipe welding.	Yes
(27) Wax application.	No
(28) Plant upkeep including housekeeping, cleaning and preservation of equipment, preparation for and painting of structures or equipment, retarring roofs, applying insulation to buildings in accordance with applicable environmental and health and safety requirements and paving or stripping parking lots.	Yes

(29) Agricultural activities on a facility's property that are not subject to registration or new source review by the permitting authority..	Yes
(30) Maintenance of paved streets and parking lots including cleaning and sweeping of streets and paved surfaces and salting and sanding.	No
(31) Ultraviolet curing processes.	No
(32) Hot melt adhesive application with no VOCs in the adhesive formula.	No
(33) Laundering, dryers, extractors, tumblers for fabrics, using water solutions of bleach and/or detergents.	No
(34) Steam cleaning operations.	Yes
(35) Steam sterilizers.	No
(36) Food preparing for human consumption including cafeterias, kitchen facilities and barbecues located at a source for providing food service on premises.	Yes
(37) Portable drums and totes.	Yes
(38) Fluorescent light tube and aerosol can crushing	Yes
(39) Flares used to indicate danger to the public	No
(40) General vehicle maintenance including vehicle exhaust from repair facilities.	Yes
(41) Comfort air conditioning or cooling systems, not used to remove air contaminants from specific equipment.	Yes
(42) Natural draft hoods, natural draft stacks, or natural draft ventilators for sanitary and storm drains, safety valves and storage tanks subject to size and service limitations expressed elsewhere in this section.	Yes
(43) Natural and forced air vents from bathroom/toilet facilities.	Yes
(44) Office activities.	Yes
(45) Equipment used for quality control/assurance or inpsection purposes, including sampling equipment used exclusively to withdraw materials for laboratory analysis	Yes
(46) Fire fighting and similar safety equipment and equipment used to train firefighters including fire drill pits.	Yes
(47) Materials and equipment used by, and activity related to the operation of infirmary; infirmary is not the source of business activity.	Yes
(48) Satellite Accumulation Area and Temporary Accumulation Areas managed in compliance with RCRA	Yes
(49) Carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planing, buffing, shot blasting, sintering, or polishing; Ceramics, glass, leather, metal, plastics, rubber, concrete, paper stock, or wood provided that these activities are not conducted as part of a manufacturing process.	Yes
(50) Oxygen, nitrogen, or rare gas extraction and liquefaction equipment subject to other exemption limitation, e.g., internal and external combustion equipment.	No
(51) Slaughterhouse equipment except rendering cookers.	No
(52) Ozonation equipment.	No
(53) Temporary construction activities at a facility provided that the installation or modification of emissions units comply with all applicable requirements	Yes
(54) Batch loading and unloading of solid phase catalysts.	Yes
(55) Pulse capacitors.	No
(56) Gas cabinets using only gases that are not regulated air pollutants	No
(57) CO2 lasers, used only on metal and other materials which do not emit HAPs	No
(58) Structural changes not having air contaminant emissions.	Yes
(59) Mixing, packaging, storage and handling activities of any size, limited to soaps, lubricants, vegetable oil, grease, animal fat, aqueous salt solutions.	yes

(60) Photographic process equipment by which an image is reproduced upon material sensitized to radiant energy, e.g., blueprint activity, photocopiers, mimeograph, telefax, photographic developing, and microfiche.	yes
(61) Pharmaceutical and cosmetics packaging equipment.	no
(62) Paper trimmers/binders.	no
(63) Bench scale laboratory equipment and laboratory equipment used exclusively for physical or chemical analysis.	
(64) Repair and maintenance activities, not involving installation of an emission unit and not increasing potential emissions of a regulated air pollutant.	yes
(65) Handling equipment and associated activities for glass and aluminum which is destined for recycling, not the re-refining process itself.	no
(66) Hydraulic and hydrostatic testing equipment.	no
(67) Batteries and battery charging.	yes
(68) Porcelain and vitreous enameling equipment.	no
(69) Solid waste containers.	yes
(70) Salt baths using nonvolatile salt and not used in operations which result in air emissions.	no
(71) Shock chambers.	no
(72) Wire strippers.	no
(73) Humidity chambers.	no
(74) Solar simulators.	no
(75) Environmental chambers not using hazardous air pollutant (HAPs) gases.	no
(76) Totally enclosed conveyors.	yes
(77) Steam vents and safety relief valves.	yes
(78) Air compressors, pneumatically operated equipment, systems, and hand tools.	yes
(79) Steam leaks.	yes
(80) Boiler blow-down tank.	yes
(81) Salt cake mix tanks.	no
(82) Digester chip feeders.	no
(83) Weak liquor and filter tanks.	yes
(84) Process water and white water storage tanks.	yes
(85) Demineralizer tanks.	yes
(86) Clean condensate tanks.	yes
(87) Alum tanks.	no
(88) Broke beaters, repulper, pulp and repulping tanks, stock chests and pulp handling.	no
(89) Lime and mud filtrate tanks.	no
(90) Hydrogen peroxide tanks.	no
(91) Lime mud washer.	no
(92) Lime mud filter.	no
(93) Liquor clarifiers or filters and storage tanks and associated pumping, piping, and handling.	yes
(94) Lime grits washers, filters, and handling.	no
(95) Lime silos and feed bins.	yes
(96) Paper forming.	no
(97) Starch cooking.	no
(98) Pulp stock cleaning and screening	no

(99) Winders or other paper converting equipment.	no
(100) Sludge dewatering and handling.	no
(101) Screw press vents.	no
(102) Pond dredging.	no
(103) Polymer tanks and storage devices and associated pumping and handling equipment, used for solids dewatering and flocculation.	yes
(104) Non-PCB oil filled circuit breakers, oil filled transformers and other equipment that is analogous to, but not considered to be, a tank.	yes
(105) Electric or steam-heated drying ovens and autoclaves.	yes
(106) Sewer manholes, junction boxes, sumps and lift stations associated with waste water treatment systems.	yes
(107) Water cooling towers processing exclusively noncontact cooling water.	yes
(108) Paper coating and sizing.	no
(109) Process waste water and ponds.	yes
(110) Outdoor firearms practice ranges.	no

Supplement D to Section III

Insignificant Activities

b. Units and activities defined as insignificant on the basis of size or production rate.	Present at Nu-West?
(1) Operation, loading and unloading of storage tanks and storage vessels, with lids or other appropriate closure and less than two hundred sixty (260) gallon capacity (35 cu.ft.), heated only to the minimum extent to avoid solidification, if necessary.	no
(2) Operation, loading and unloading of storage tanks, not greater than one thousand one hundred (1,100) gallon capacity, with lids or other appropriate closure, not fo use with hazardous air pollutants (HAPs), maximum (max.) vp 550 mm Hg.	no
(3) Operation, loading and unloading of VOC storage tanks (including gasoline storage tanks), ten thousand (10,000) gallons capacity or less, with lids or other appropriate closure, vp not greater than 80 mm Hg at 21° C.	yes
(4) Operation, loading and unloading storage tanks of butane, propane, or liquefied petroleum gas (LPG), storage tanks, vessel capacity under forty thousand (40,000) gallons.	yes
(5) Combustion source, less than five million (5,000,000) Btu/hr, exclusively using natural gas, butane, propane, and/or LPG.	yes
(6) Combustion source, less than five hundred thousand (500,000) Btu/hr, using any commercial fuel containing less than four-tenths percent (0.4%) by weight sulfur for coal or less than one percent (1%) by weight for other fuels.	no
(7) Combustion source, of less than one million (1,000,000) Btu/hr, using kerosene, No. 1 or No. 2 fuel oil.	no
(8) Combustion source, not greater than five hundred thousand (500,000) Btu/hr, if burning waste wood, wood waste, or waste paper.	no
(9) Welding using not more than one (1) ton per day of welding rod.	yes
(10) Foundry sand molds, unheated and using binders with less than twenty-five hundredths percent (0.25%) free phenol by sand weight.	no
(11) "Parylene" coaters using less than five hundred (500) gallons coating per year.	no
(12) Printers using silk screening, using less than two (2) gallons per day of any combination of the following: inks, coatings, adhesives, fountain solutions, thinners, retarders, or non-aqueous cleaning solutions.	no
(13) Water cooling towers and pons, not using chromium-based corrosion inhibitors, not used with barometric jets or condensers, not greater than ten thousand (10,000) gpm, not in direct contact with gaseous or liquid process streams containing regulated air pollutants.	yes
(14) Combustion turbines, of less than five hundred (500) HP.	no
(15) Batch solvent distillation, not greater than fifty-five (55) gallons batch capacity.	no
(16) Municipal and industrial water chlorination facilities of not greater than twenty million (20,000,000) gallons per day capacity. The exemption does not apply to waste water treatment.	yes
(17) Surface coating, using less than two (2) gallons per day.	no

(18) Space heaters and hot water heaters using natural gas, propane or kerosene and generating less than five million Btu/hr.	yes
(19) tanks, vessels, and pumping equipment, with lids or other appropriate closure for storage or dispensing of aqueous solutions of inorganic salts, bases and acids excluding: (i) ninety-nine percent (99%) or greater H_2SO_4 or H_3PO_4 (ii) seventy percent (70%) or greater HNO_3	yes(i)
(iii) thirty percent (30%) or greater HCl (iv) more than one (1) liquid phase where the top phase is more than one percent (1%) VOCs.	
(20) Equipment used exclusively to pump, load, unload, or store high boiling point organic material, material with initial boiling point (IBP) not less than 150° C or vapor pressure (vp) not more than 5 mm Hg at 21° with lids or other appropriate closure.	yes
(21) Smokehouses under twenty (20) square feet.	no
(22) Milling and grinding activities, using paste form compounds with less than one percent (1%) VOCs.	no
(23) Rolling, forging, drawing, stamping, shearing, or spinning hot or cold metals.	yes(R)
(24) Dip-coating operations, using materials with less than one percent (1%) VOCs.	no
(25) Surface coating, aqueous solution or suspension containing less than one percent (1%) VOCs.	no
(26) Cleaning and stripping activities and equipment, using solutions having less than one percent (1%) VOCs by weight. On metallic substrates, acid solutions are not considered for listing as insignificant.	no
(27) Storage and handling of water based lubricants for metal working where the organic content of the lubricant is less than ten percent (10%).	no
(28) Municipal and industrial waste water chlorination facilities of not greater than on million (1,000,000) gallons per day capacity.	no
(29) Domestic sewage treatment ponds with average flowrates less than 400 gpm or treating waste from less than 3,000 people from non-residential sources.	yes
(30) An emission unit or activity with emissions less than or equal to ten percent (10%) of the levels contained in Section 006 of the definition of significant and no more than on (1) ton per year of any HAP.	no

Supplement E to Section III

Supporting Documentation for Insignificant Activities listed in Rule 317.01.b.

(3) The following atmospheric aboveground storage tanks are loaded and unloaded at the facility:

1. one (1) two thousand (2,000) gallon capacity gasoline storage tank.
2. one (1) two hundred-fifty (250) gallon capacity diesel fuel storage tank.
3. three (3) five hundred (500) gallon capacity diesel fuel (portable) storage tanks.
4. one (1) one thousand (1,000) gallon capacity diesel fuel storage tank.
5. one (1) two thousand (2,000) gallon capacity diesel fuel storage tank.
6. one (1) one thousand two-hundred (1,200) gallon capacity diesel fuel storage tank.
7. one (1) five hundred (500) gallon capacity 10W oil storage tank.
8. one (1) two hundred-fifty (250) gallon capacity 30W oil storage tank.
9. one (1) five hundred (500) gallon capacity 30W oil storage tank.
10. one (1) two hundred-fifty (250) gallon capacity antifreeze storage tank.
11. one (1) one thousand nine-hundred (1,900) gallon capacity used oil storage tank.
12. one (1) ten thousand (10,000) gallon capacity dust suppressant storage tank (Class III).
13. one (1) seventeen thousand (17,000) gallon capacity dust suppressant storage tank (Class III).

(4) The following propane storage tanks are loaded and unloaded at the facility:

1. one (1) two hundred fifty (250) gallon capacity propane storage tank.
2. two (2) five hundred (500) gallon capacity propane storage tanks.

(5) The following combustion sources operated at the facility use less than five million (5,000,000) Btu/hr:

<u>Building Heaters</u>

1. One (1) Aerovent Mo. 4218D Air Heater	325,000 Btu/hr (est.)
2. Four (4) Aerovent Mo. N248B Door Air Heaters	325,000 Btu/hr
3. Three (3) Aerovent Mo. G490BD Air Makeup Units	3,750,000 Btu/hr
4. One (1) Advanced Dist. Products Mo. HEP-75-S-1	75,000 Btu/hr
5. One (1) Caffers (building heater)	100,000 Btu/hr (est.)
6. One (1) Dearborn Mo. DWC-10-N	10,000 Btu/hr
7. One (1) Duct Furnace Mo. SD-400E	400,000 Btu/hr
8. One (1) Enerco Mo. 8060	60,000 Btu/hr
9. One (1) Gaffers & Stattler Mo. 75-UP-5	75,000 Btu/hr
10. One (1) Gaffers & Stattler Mo. 100UF5	100,000 Btu/hr
11. One (1) Gaffers & Stattler Mo. 200UFA	200,000 Btu/hr
12. One (1) Gaffers & Stattler Mo. 225UFA	225,000 Btu/hr
13. Two (2) Hartzell Mo. G152	1,500,000 Btu/hr
14. One (1) Lennox Mo. LF-24-50-S-1	50,000 Btu/hr
15. One (1) Lennox Mo. G11-110	110,000 Btu/hr
16. One (1) Lennox Mo. LF2-137	137,000 Btu/hr
17. One (1) Lennox Mo. G12Q5E-165-10	165,000 Btu/hr
18. One (1) Lennox	200,000 Btu/hr (est.)
19. One (1) Lennox Mo. LF2-220	220,000 Btu/hr

20. Two (2) Lennox Mo. LF-250A-M	250,000 Btu/hr
21. Three (3) Lennox Mo. LF24-300S-1	300,000 Btu/hr
22. One (1) Modine Mo. PA50AF	50,000 Btu/hr
23. One (1) Modine Mo. PA105AB	105,000 Btu/hr
24. One (1) Modine Mo. PA200A	180.000 Btu/hr
25. One (1) Modine Mo. PA225AB	225,000 Btu/hr
26. Two (2) Modine Mo. PA250AC	250,000 Btu/hr
~~27. One (1) Modine Mo. PA300AC~~	~~300,000 Btu/hr~~
28. Two (2) Modine Mo. PA350AB	350,000 Btu/hr
29. One (1) Perfection/Schwank Mo. JC50	50,000 Btu/hr
30. One (1) Reznor (building heater)	100,000 Btu/hr (est.)
31. One (1) Ultramatic XI (portable)	600,000 Btu/hr
32. One (1) ______ Mo. SGF	175,000 Btu/hr
33. One (1) ______ Mo. DR-130N-SP-4	130,000 Btu/hr (LPG)

Comfort Air Furnaces for Offices/Control Rooms

1. One (1) Day & Night Mo. 150UA	150,000 Btu/hr
2. One (1) Day & Night Mo. 180UA	180,000 Btu/hr
3. One (1) Janitrol Mo. 20-225	225,000 Btu/hr
4. Four (4) Lennox Pulse 21 Mo. G21Q4/5-100-3	100,000 Btu/hr

Water Heaters

1. Four (4) A.O. Smith Mo. FSG 40	32,000 Btu/hr
2. One (1) A.O. Smith Mo. FSG 50	40,000 Btu/hr
3. Two (2) A.O. Smith Mo. BT 100	80,000 Btu/hr
4. One (1) A.O. Smith Mo. BT 270	270,000 Btu/hr

Steam Cleaners

1. One (1) Alkota Mo. X126668	350,000 Btu/hr (est.) (LPG)
2. One (1) Hotsy Mo. 00881E	350,000 Btu/hr
3. One (1) Hotsy Mo. 940A	350,000 Btu/hr

(9) Welding is an on-going activity at the facility, but not using more than one (1) ton of welding rod per day.

(13) A water cooling basin is used to cool the process stream at our sulfuric acid plant (indirect cooling). It does not use chromium-based corrosion inhibitors, barometric jets or condensers, does not exceed ten thousand (10,000) gpm, and is not come in direct contact with gaseous or liquid process streams containing regulated air pollutants.

(16) An industrial water chlorination system untilizing compressed chlorine gas with a daily maximum treatment capacity engineered for 576,000 gallons per day is operated on-property.

(18) Space heaters and water heaters generating less than five million Btu/hr - SEE (5) ABOVE. Nu-West requests that the equipment listed or replacement-in-kind equipment be considered.

(19) Tanks and pumping equipment for storage and dispensing of acids not greater than 99% H_2SO_4 or H_3PO_4 exist at the facility. H_2SO_4 is stored, pumped, and dispensed at strengths of 93% and 98%. H_3PO_4 is stored, pumped, and dispensed at strengths of 39% to 97%.

(20) Equipment used exclusively to pump, load, unload, or store high boiling point organic material with an initial boiling point (IBP) at less than 150° C or vapor pressure (vp) not more than 5 mm Hg at 21° C with lids or other appropriate closure is present at the facility. Therminol ® 55 Heat Transfer Fluid is the HBPOM used at the facility (Boiling range: 335° C to 390° C @ 760 mm; Reid vapor pressure: 0.16 psi @ 100° F).

~~(23) Rolling of cold metal not exceeding 48 in. wide and 1/2 in. thick is performed at the facility.~~

(30) In reference to (18) above, there are two (2) existing building air heaters which are rated at 5,200,000 Btu original design. These Hartzell Mo. G-402-FIA air heaters use open-flame combustion and propeller-type fans to heat outside air and pull the heated air inside the building. Actual Btu "generation" (vs. "input"), as stated at (18) above, would be estimated at less than five million (5,000,000) Btu. Nu-West requests that these two (2) Hartzell Mo. G-402-FIA air heaters be listed as insignificant.

Review complete up to this point. need to restart here

Section 4A
Applicable and Nonapplicable Requireme
(IDAPA 16.01.01 Rules 314.05)

Regulation, Condition, Order, Etc.		Applicability		
Citation	Title	Yes	No	Explanation Code[1]
IDAPA 16.01.01.000	LEGAL AUTHORITY General Applicability		X	a.
IDAPA 16.01.01.001	TITLE AND SCOPE General Applicability		X	a.
IDAPA 16.01.01.002	WRITTEN INTERPRETATIONS General Applicability		X	a.
IDAPA 16.01.01.003	ADMINISTRATIVE APPEALS General Applicability		X	a.
IDAPA 16.01.01.004	CATCHLINES General Applicability		X	a.
IDAPA 16.01.01.005	DEFINITIONS General Applicability		X	a.
IDAPA 16.01.01.006	GENERAL DEFINITIONS General Applicability		X	a.
IDAPA 16.01.01.007	DEFINITIONS FOR THE PURPOSES OF SECTIONS 200 THROUGH 223 AND 400 THROUGH 461 General Applicability		X	a.
IDAPA 16.01.01.008	DEFINITIONS FOR THE PURPOSES OF SECTIONS 300 THROUGH 386 General Applicability		X	a.
IDAPA 16.01.01.009	DEFINITIONS FOR THE PURPOSES OF 40 CFR PART 60 General Applicability		X	b.
IDAPA 16.01.01.010	DEFINITIONS FOR THE PURPOSES OF 40 CFR PART 61 AND 40 CFR PART 63 General Applicability		X	c.
IDAPA 16.01.01.106	ABBREVIATIONS General Applicability		X	a.
IDAPA 16.01.01.107	INCORPORATIONS BY REFERENCE General Applicability		X	a.
IDAPA 16.01.01.121	COMPLIANCE REQUIREMENTS BY DEQ Requirements or Standards: Monitoring, Recordkeeping, Reporting, as required by DEQ General Applicability		X	a.
IDAPA 16.01.01.122	INFORMATION ORDERS BY DEQ General Applicability		X	a.
IDAPA 16.01.01.123	CERTIFICATION OF DOCUMENTS General Applicability	X		a.
IDAPA 16.01.01.124	TRUTH, ACCURACY AND COMPLETENESS OF DOCUMENTS General Applicability	X		
IDAPA 16.01.01.125	FORMAT OF RESPONSES General Applicability	X		
IDAPA 16.01.01.126	TAMPERING General Applicability	X		

IDAPA 16.01.01.127	FORMAT OF RESPONSES General Applicability	X		
IDAPA 16.01.01.128	CONFIDENTIAL INFORMATION General Applicability		X	e.
IDAPA 16.01.01.130 through 136	EXCESS EMISSIONS FROM STARTUP, SHUTDOWN or SCHEDULED MAINTENANCE UPSET AND BREAKDOWN REQUIREMENTS General Applicability	X		
~~IDAPA 16.01.01.140~~ through 149	~~VARIANCE PROCEDURES and PETITIONS~~ General Applicability		~~X~~	~~a., e.~~
IDAPA 16.01.01.155	CIRCUMVENTION General Applicability	X		
IDAPA 16.01.01.156	TOTAL COMPLIANCE General Applicability	X		
IDAPA 16.01.01.157	SAMPLING AND ANALYTICAL PROCEDURES General Applicability	X		
IDAPA 16.01.01.160	PROVISIONS GOVERNING SPECIFIC ACTIVITIES AND CONDITIONS General Applicability		X	a.
IDAPA 16.01.01.161	TOXIC SUBSTANCES General Applicability	X		
IDAPA 16.01.01.162	MODIFYING PHYSICAL CONDITIONS General Applicability		X	a.
IDAPA 16.01.01.163	SOURCE DENSITY General Applicability		X	a.
IDAPA 16.01.01.164	POLYCHLORINATED BIPHENYLS (PCBS) Requirements and Standards: Prohibits burning PCB containing materials, in quantites greater than five (5) ppm, except for disposal.		X	d.
IDAPA 16.01.01.200 through 223	PROCEDURES AND REQUIREMENTS FOR PERMITS TO CONSTRUCT	X		
IDAPA 16.01.01.300 through 317	PROCEDURES AND REQUIREMENTS FOR TIER I OPERATING PERMITS General Applicability	X		
IDAPA 16.01.01.321 through 325	TIER I OPERATING PERMIT CONTENT General Applicability	X		
IDAPA 16.01.01.332	EMERGENCY AS AN AFFIRMATIVE DEFENSE REGARDING EXCESS EMISSIONS General Applicability to Tier I Sources	X		
IDAPA 16.01.01.335	GENERAL TIER I OPERATING PERMITS AND AUTHORIZATIONS TO OPERATE		X	h.
IDAPA 16.01.01.336	TIER I OPERATING PERMITS FOR TIER I PORTABLE SOURCES		X	h.
IDAPA 16.01.01.360 through 368	STANDARD PROCESSING OF TIER I OPERATING PERMIT APPLICATION General Applicability to Tier I Sources		X	a.
IDAPA 16.01.01.369	TIER I OPERATING PERMIT RENEWAL	X		
IDAPA 16.01.01.380	ALTERATIONS General Applicability to Tier I Sources		X	e.
IDAPA 16.01.01.381 through 386	ALTERATIONS GENERALLY General Applicability to Tier I Sources		X	e.
IDAPA 16.01.01.400 through 406	PROCEDURES AND REQUIREMENTS FOR TIER II OPERATING PERMITS		X	f.
IDAPA 16.01.01.440	REQUIREMENTS FOR ALTERNATIVE EMISSION LIMITS (BUBBLES)		X	e.
IDAPA 16.01.01.441	DEMONSTRATION OF AMBIENT EQUIVALENCE		X	e.

IDAPA 16.01.01.460	REQUIREMENTS FOR EMISSION REDUCTION CREDIT		X	e.
IDAPA 16.01.01.461	REQUIREMENTS FOR BANKING EMISSION REDUCTION CREDITS (ERC'S)		X	e.
IDAPA 16.01.01.470	PERMIT APPLICATION FEES FOR TIER II		X	f.
IDAPA 16.01.01.500	REGISTRATION PROCEDURES AND REQUIREMENTS FOR PORTABLE EQUIPMENT		X	h.
IDAPA 16.01.01.510 through 516	STACK HEIGHTS AND DISPERSION TECHNIQUES		X	i.
IDAPA 16.01.01.525	REGISTRATION AND REGISTRATION FEES		X	a.
IDAPA 16.01.01.526	APPLICABILITY	X		
IDAPA 16.01.01.527	REGISTRATION	X		
IDAPA 16.01.01.528	REQUEST FOR INFORMATION		X	e., l.
IDAPA 16.01.01.530	REGISTRATION FEE	X		
IDAPA 16.01.01.531	REGISTRATION BY THE DEPARTMENT		X	a.
IDAPA 16.01.01.532	PAYMENT DUE	X		
IDAPA 16.01.01.533	EFFECT OF DELINQUENCY ON APPLICATIONS		X	a.
IDAPA 16.01.01.534	APPEALS		X	e.
IDAPA 16.01.01.535	AMENDING REGISTRATION	X		
IDAPA 16.01.01.536	CHECKS SHOULD BE MADE OUT TO "DEPARTMENT OF HEALTH AND WELFARE - AQ REGISTRATION FEE"	X		
IDAPA 16.01.01.537	EXEMPTIONS	X		
IDAPA 16.01.01.538	LUMP SUM PAYMENTS OF REGISTRATION FEES		X	a., n.
IDAPA 16.01.01.550 through 562	AIR POLLUTION EMERGENCY RULE		X	a., p.
IDAPA 16.01.01.575	AIR QUALITY STANDARDS AND AREA CLASSIFICATION		X	a.
IDAPA 16.01.01.576	GENERAL PROVISIONS FOR AMBIENT AIR QUALITY STANDARDS		X	a.
IDAPA 16.01.01.577	AMBIENT AIR QUALITY STANDARDS FOR SPECIFIC AIR POLLUTANTS		X	a.
IDAPA 16.01.01.578	DESIGNATION OF ATTAINMENT, UNCLASSIFIABLE, AND NONATTIANMENT AREAS		X	a.
IDAPA 16.01.01.579	BASELINES FOR PREVENTION OF SIGNIFICANT DETERIORATION		X	a.
IDAPA 16.01.01.580	CLASSIFICATION OF PREVENTION OF SIGNIFICANT DETERIORATION AREAS		X	a.
IDAPA 16.01.01.581	PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENTS		X	a., z.
IDAPA 16.01.01.585	TOXIC AIR POLLUTANTS NON-CARCINOGENIC INCREMENTS		X	a.
IDAPA 16.01.01.586	TOXIC AIR POLLUTANTS CARCINOGENIC INCREMENTS		X	a.
IDAPA 16.01.01.587	LISTING OR DELISTING TOXIC AIR POLLUTANT INCREMENTS		X	r.
IDAPA 16.01.01.590	NEW SOURCE PERFORMANCE STANDARDS	X		s.
IDAPA 16.01.01.591	NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS	X		t.
IDAPA 16.01.01.600 through 608	RULES FOR CONTROL OF OPEN BURNING		X	h.

IDAPA 16.01.01.609	TRAINING FIRES	X		
IDAPA 16.01.01.610 through 6168	RULES FOR CONTROL OF OPEN BURNING		X	h.
IDAPA 16.01.01.625	VISIBLE EMISSIONS	X		
IDAPA 16.01.01.626	GENERAL RESTRICTIONS ON VISIBLE EMISSIONS FROM WIGWAM BURNERS		X	h.
IDAPA 16.01.01.650	RULES FOR CONTROL OF FUGITIVE DUST	X		
IDAPA 16.01.01.651	GENERAL RULES	X		
IDAPA 16.01.01.675 through 680	FUEL BURNING EQUIPMENT	X		xyz.
IDAPA 16.01.01.700	PARTICULATE MATTER – PROCESS WEIGHT LIMITATIONS	X		
IDAPA 16.01.01.701	PARTICULATE MATTER - NEW EQUIPMENT PROCESS WEIGHT LIMITATIONS		X	xyz.
IDAPA 16.01.01.702	PARTICULATE MATTER - EXISTING EQUIPMENT PROCESS WEIGHT LIMITATIONS	X		
IDAPA 16.01.01.703	PARTICULATE MATTER – OTHER PROCESSES		X	d.
IDAPA 16.01.01.725	RULES FOR SULFUR CONTENT OF FUELS		X	a.
IDAPA 16.01.01.726	DEFINITIONS AS USED IN SECTIONS 727 THROUGH 729		X	a.
IDAPA 16.01.01.727	RESIDUAL FUEL OILS		X	d.
IDAPA 16.01.01.728	DISTILLATE FUEL OIL	X		
IDAPA 16.01.01.729	COAL	X		
IDAPA 16.01.01.750	RULES FOR CONTROL OF FLUORIDE EMISSIONS		X	a.
IDAPA 16.01.01.751	GENERAL RULES	X		
IDAPA 16.01.01.775	RULES FOR CONTROL OF ODORS	X		
IDAPA 16.01.01.776	GENERAL RULES	X		
IIDAPA 16.01.01.785 through 787	RULES FOR CONTROL OF INCINERATORS		X	h.
IDAPA 16.01.01.805 through 808	RULES FOR CONTROL OF HOT-MIX ASPHALT PLANTS		X	h.
IDAPA 16.01.01.815 through 826	RULES FOR CONTROL OF KRAFT PULPING MILLS		X	h.
IDAPA 16.01.01.835 through 839	RULES FOR CONTROL OF RENDERING PLANTS		X	h.
IDAPA 16.01.01.845	RULES FOR CONTROL OF SULPHUR OXIDE EMISSIONS FROM SULFURIC ACID PLANTS		X	h.
IDAPA 16.01.01.846 through 848	GENERAL RESTRICTIONS	X		
IDAPA 16.01.01.855 through 858	COMBINED ZINC AND LEAD SMELTERS		X	h.

Regulation, Condition, Order, Etc.		Applicability		
Citation	Title	Yes	No	Explanation Code[1]
40 CFR Part 50	National Primary and Secondary Ambient Air Quality Standards		X	y.
40 CFR Part 51	Requirements for Preparation, Adoption and Submittal of Implementation Plans		X	y.
40 CFR Part 52	Approval and Promulgation of Implementation Plans		X	y.
40 CFR Part 53	Ambient Air Monitoring Reference and Equivalent Methods		X	z.
40 CFR Part 54	Prior Notice of Citizen Suits		X	aa.
40 CFR Part 55	Outer Continential Shelf Air Regulations		X	ab.
40 CFR Part 56	Regional Consistency		X	y.
40 CFR Part 57	Primary Nonferrous Smelter Orders		X	h.
40 CFR Part 58	Ambient Air Quality Surveillance		X	a.
40 CFR Part 60	Standards of Performance for New Stationary Sources	X		s.
40 CFR Part 61	National Emission Standards for Hazardous Air Pollutants	X		t.
40 CFR Part 62	Approval and Promulgation of State Plans for Designated Facilities and Pollutants		X	y.
40 CFR Part 63	National Emission Standards for Hazardous Air Pollutants for Source Categories	X		xyz.
40 CFR Part 65	Delayed Compliance Orders		X	y.
40 CFR Part 66	Assessment and Collection of Noncompliance Penalties by EPA		X	y.
40 CFR Part 67	EPA Approval of State Noncompliance Penalty Program		X	y.
40 CFR Part 69	Special Exemptions from Requirements of the Clean Air Act		X	y.
40 CFR Part 70	State Operating Permit Program		X	y.
40 CFR Part 71	Federal Operating Permit Program		X	f.
40 CFR Part 72	Permits Regulation		X	ad.
40 CFR Part 73	Sulpher Dioxide Allowance System		X	ad.
40 CFR Part 75	Continuous Emission Monitoring		X	ad.
40 CFR Part 77	Excess Emissions		X	ad.
40 CFR Part 78	Appeal Procedures for Acid Rain Program		X	ad.
40 CFR Part 79	Registration of Fuels and Fuel Additives		X	h.
40 CFR Part 80	Regulation of Fuels and Fuel Additives		X	h.

Regulation, Condition, Order, Etc.		Applicability		
Citation	Title	Yes	No	Explanation
Permit Condition 1	Source Permit No. 13-0420-0003-00		X	1.
Permit Condition 2	Source Permit No. 13-0420-0003-01	X		
Permit Condition 2	Source Permit No. 13-0420-0003-01		X	6.
Permit Condition 3	Source Permit No. 13-0420-0003-02	X		
Permit Condition 3	Source Permit No. 13-0420-0003-02		X	6.
Permit Condition 4	Source Permit No. 13-0420-0003-03		X	2.
Permit Condition 4	Source Permit No. 13-0420-0003-03		X	2.
Permit Condition 5	Source Permit No. 13-0420-0003-04		X	2.
Permit Condition 5	Source Permit No. 13-0420-0003-04		X	2.
Permit Condition 6	Source Permit No. 13-0420-0003-09	X		
Permit Condition 6	Source Permit No. 13-0420-0003-09		X	6.
Permit Condition 7	Source Permit No. 13-0420-0003-10	X		
Permit Condition 7	Source Permit No. 13-0420-0003-10		X	6.
Permit Condition 8	Source Permit No. 13-0420-0003-11		X	2.
Permit Condition 8	Source Permit No. 13-0420-0003-11		X	2.
Permit Condition 9	Source Permit No. 13-0420-0003-12		X	3.
Permit Condition 9	Source Permit No. 13-0420-0003-12		X	3.
Permit Condition 10	Source Permit No. 13-0420-0003-15	X		
Permit Condition 10	Source Permit No. 13-0420-0003-15		X	6.
Permit Condition 11	PTC No. 0029-0003 (or 0027-0003?)	X		
Permit Condition 12	PTC No. 029-00003	X		
Consent Decree	Civil Action No. 9502025-S dated 8/28/95		X	4.
Amended Consent Order	Document dated October 24, 1973	X		5.
Additional "Parallel" Permit Conditions	Source Permit No. 's 13-0420-0003-00 through 13-0420-0003-15 (dated 7/18/79) recorded into SIP at 40CFR52.679 previous to addition of upset/breakdown conditions.	--	--	See all of the above explanations.

1. New General Conditions to be provided with Tier I Operating Permit.
2. This equipment no longer in operation and not to be permitted.
3. Superceded by Permit to Construct 029-00003 issued January 5, 1996.
4. All terms of Consent Decree settled, resolved, and complete.
5. Provisions 1 and 2 of Condition 6 and Conditions 10 through 14 remain in effect.
6. Testing complete as required by the Permit.

Explanation Codes

Section 4A

Applicable and Nonapplicable Requirements Checklist
(IDAPA 16.01.01 Rules 314.06 and 314.08)

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a. Outlines conditions, criteria, standards, and/or requirements for promulgating, and/or defining, and/or implementing, and/or operating, and/or enforcing Rules for the Control of Pollution In Idaho.

b. Definitions in 40 CFR Part 60 accepted by the "Department".

c. Definitions in 40 CFR Part 61 and 40 CFR Part 63 accepted by the "Department".

d. The facility does not conduct this activity.

e. Facility has not triggered the requirement to be subject to these provisions, however we reserve the right to use these provisions in the future if the circumstances arise.

f. Regulation is not applicable to Tier I sources.

h. Facility does not include this equipment, emission unit, or source category.

i. No changes or modifications have been made to this facility to trigger these requirements.

j. This facility has not requested an alternative emission limit.

k. All stacks that have been constructed or reconstructed after December 31, 1970 have complied with good engineering practices according to these rules.

l. All information that has been required by the Department in the past for the purpose of this rule has been supplied according to the rule.

n. No agreement has been reached between this facility and the Department to pay a lump sum fee.

o. Facility is not a designated stricken area.

p. An Emergency Episode Abatement Plan for this facility was submitted to the State by a former owner/operator in a letter dated December 27, 1972. The State accepted the plan by letter sent back to the former owner/operator dated January 24, 1973.

q. All modifications or installations that have occurred since May 1, 1994 and have required a Permit to Construct (PTC) have complied with these rules.

Explanation Codes, page 2.

r. No request has been made by this facility to list or delist any toxic substance in section 585 and 586; however we reserve the right to use these provisions in the future if the circumstances arise.

s. Facility is subject to NSPS rules as identified in Table 4B, which are specifically 40CFR60.80-85; 40CFR60.44b(a); 40CFR60.210-214; and general NSPS requirements specifically referred to in those parts. No other NSPS rules apply to facility. See note XYZ.

t. Facility is only subject to Subpart R and Subpart M of 40 CFR 61 as identified in Table 4B. See note XYZ.

w. Facility does not use this fuel type.

y. Refers to EPA authority or delegation of authority to State agencies.

z. Rules govern ambient air monitoring and do not apply to individual sources.

aa. Rules govern citizen suit action.

ab. Rules govern Outer Continental Shelf activities.

ac. Ambient air quality surveillance is not required as outlined in this Part at this facility.

ad. Acid rain regulations do not apply to this facility.

bc. No installation or use of any device conceals an emission of air pollutants in accordance with these rules.

bd. All proposed sampling and analytical procedures will be approved by the Department.

be. Pollutant is not emitted by this source.

bf. All pollutants emitted by facility are controlled elsewhere in this rule.

bg. All modifications and installations that have occurred since adoption of this rule and have required a Permit to Construct (PTC) have been completed according to the rule.

xyz. Explanation of applicability found in Section 4C.

zzz. Facility currently subject to this rule, but will cease to be subject to this rule upon issuance of a Tier I Operating Permit.

Section 4B
Specific Applicable Requirements
(IDAPA 16.01.01 Rule 314.05)

Emissions Unit	Citation	Applicable Requirement[1]	Required Method to Determine Compliance
Facility	IDAPA 16.01.01.123	General applicability to facility to provide certification of documents to IDEQ.	None
Facility	IDAPA 16.01.01.124	General applicability to facility to provide truthful, accurate, and complete documents to IDEQ.	None
Facility	IDAPA 16.01.01.125	General applicability to facility to provide documents to IDEQ in a format approved by the Department.	None
Facility	IDAPA 16.01.01.130 through 136	Excess Emissions during Startup, Shutdown and Scheduled Maintenance, Upset and breakdown requirements.	Conditions and requirements specified in sections 130 through 136.
Facility	IDAPA 16.01.01.300 through 317	Procedures and requirements for Tier I Operating Permits.	Submit Tier I application
Facility	IDAPA 16.01.01.525 through 527,528, 530 through 537	Registration of air pollutants and payment of registration fees.	Fees and registration submitted timely
S-Se-1	IDAPA 16.01.01.590 and 40CFR60.80 through 85	Sulfuric Acid Plant NSPS standards: 4.0 lbs SO_2/ton and acid mist 0.15 lbs/ton 100% acid produced.	Parts 60.84(d); 60.85(b)(4) ; 60.85(c)(1)
S-Nb-1	IDAPA 16.01.01.590, 40 CFR 60.44b(a)	Natural gas fired boiler (PTC 29-00003) subject to NSPS emission limit for NO_x (as NO_2) not to exceed 0.10 lb/MM Btu.	40 CFR 60.48b(b),(c),(d),(e)(2), and (f) OR 40 CFR 60.49b(c).
S-Pa-1	IDAPA 16.01.01.590 and 40CFR61.210 through 214	NSPS for Superphosphoric Acid Plants: 0,010lb F/ton P_2O_5 fed.	Monitoring and testing outlined in 40 CFR60.213 and 214
Facility	IDAPA 16.01.01.591 and 40 CFR 61.200 through 205	Phosphogypsum stacks shall not emit more than 20 cPi/m^2-s radon-222 into the air.	40 CFR 61.203
Facility	IDAPA 16.01.01.625	20 percent opacity	None
Facility	IDAPA 16.01.01.650 through 651	Control of fugitive dust.	Implement reasonable precautions
S-Nb-1 and #2 SPA unit	IDAPA 16.01.01.675 through 676	Allowable particulate 0.015 gr/dscf @ 3% oxygen	None

S-D-1 S-Ca-1 S-Cb-1 S-Fa-2 #1 SPA unit	IDAPA 16.01.01.677	Allowable particulate 0.015 gr/dsct @ 3% oxygen	None
S-D-1 S-Ca-1 S-Cb-1 S-Pa-1 S-Fa-1/2/3	IDAPA 16.01.01.702	Particulate matter emission limitations for process equipment by process weight ratio. $E = 1.12(PWR)^{0.27}$	None
S-Ca-1 S-Cb-1	IDAPA 16.01.01.729	Sulfur content in coal not to exceed 1.0% sulfur by weight.	None
S-Ca-1 S-Cb-1 S-D-1 S-Pa-1 S-Fa-1	IDAPA 16.01.01.751.01 and 751.03	Fluoride emission limitations from fertilizer plant sources not to exceed 0.30 lb F^-/ton P_2O_5 input to the calciner operation or source permit limits in section 751.03. (ie; S-Ca-1, S-Cb-1 and S-D-1 = 1.5 lb F/hr, S-Pa-1 + 24.88 lbs F/hr, S-Fa-1 = 12.44 lbs F/hr).	Stack testing as outlined in Permit No's 13-0420-0003-01, 02, 09, 10, and 15.
Facility	IDAPA 16.01.01.775 through 776.01	Control of odors.	None
S-D-1 S-Ca-1 S-Cb-1 S-Pa-1 S-Fa-1/2/3	Permit Condition 1.	Allowable mass <particulate> emission rate limitations shown in Permit 13-0420-0003-00 Part III. $E = 1.12(PWR)^{0.27}$ lbs/hr.	EPA method 5
S-D-1	Permit Condition 2.	Particulate and Fluoride emissions limitations from Dryer. "E"above and 1.5 lbs F/hr	Stack testing as outlined in Permit 13-0420-0003-01.
S-Cb-1	Permit Condition 3.	Particulate and Fluoride emissions limitations from North Calciner. "E"above and 1.5 lbs F/hr	Stack testing as outlined in Permit 13-0420-0003-02.
S-Pa-1	Permit Condition 6.	Particulate and Fluoride emissions limitations from Phosphoric acid production. "E"above and 24.88 lbs F/hr	Stack testing as outlined in Permit 13-0420-0003-09.
S-Fa-1/2/3	Permit Condition 7.	Particulate and Fluoride emissions limitations from Diammonium phosphate production. "E"above and 12.44 lbs F/hr	Stack testing as outlined in Permit 13-0420-0003-10.
S-S-1	Permit Condition 9.	Sulfur dioxide and acid mist emission limitations from East sulfuric acid plant. SO_2 = 4.0 lbs/ton and SO_3 = 0.15 lbs/ton	Stack testing as outlined in Permit 13-0420-0003-12.
S-Ca-1	Permit Condition 10.	Particulate and Fluoride emissions limitations from #4 Calciner. "E"above and 1.5 lbs F/hr	Stack testing as outlined in Permit 13-0420-0003-15.

S-Si-1	Permit Condition 11.	Silica Plant NH3 emission limits: 0.00066 lbx/hr and 0.0028 T/yr. F emission limits: 0.011 lb/hr and 0.046 T/yr. Visible emissions 20% opacity	Performance test in accordance with permit to measure NH3 and F. Visible emissions testing.

Section 4C
Proposed Exemptions and Non-Applicability Determination
(Continued from Section 4A)
(IDAPA 16.01.01 Rule 314.08)

Citation	Explanation of Applicability
IDAPA 16.01.01.675 through 680	Natural gas is the only fuel used in fuel burning equipment at the Facility. No combinations of fuels other than natural gas are used.
IDAPA 16.01.01.700 through 703	Sections 700 through 702 do not apply. Sections 701 (new equipment) through 703 (other processes) do not apply. Emission limits specified in Section 702 (existing equipment) appear in Source Permit No. 13-0420-0003-00.
IDAPA 16.01.01.590 and 40 CFR Part 60	Except for the equipment and/or processes referenced on Form 4B, no other equipment and/or processes at the facility are subject to any other part of these rules.
IDAPA 16.01.01.591 and 40 CFR Part 61 and Part 63	Except for the equipment and/or processes referenced on Form 4B, no other equipment and/or processes at the facility are subject to any other part of these rules.

Section 5A
Compliance Certification at Time of Application
(IDAPA 16.01.01 Rule 314.09.a)

Emissions Unit	Citation	Applicable Requirement	Compliance? Yes	Compliance? No	Method Used to Determine Compliance
Facility	IDAPA 16.01.01.123	General applicability to facility to provide certification of documents to IDEQ.	X		Submit certified documents to IDEQ.
Facility	IDAPA 16.01.01.124	General applicability to facility to provide truthful, accurate, and complete documents to IDEQ.	X		Submit certified documents to IDEQ.
Facility	IDAPA 16.01.01.125	General applicability to facility to provide documents to IDEQ in a format approved by the Department.	X		Submit documents to IDEQ in a format approved by the Department.
Facility	IDAPA 16.01.01.130 through 136	Upset and breakdown requirements.	X		Record keeping and Reporting
Facility	IDAPA 16.01.01.200 through 223	Procedures and requirements for Permits to Construct		X	Minor New Source Review Permits may not have been timely obtained.
Facility	IDAPA 16.01.01.300 through 316	Procedures and requirements for Tier I Operating Permits.	X		Submit application for and obtain a permit.
Facility	IDAPA 16.01.01.326 through 329	Additional contents of Tier I Operating Permits - Excess emissions.	X		Engineering estimates
Facility	IDAPA 16.01.01.525 through 527, 528 through 537	Registration of air pollutants and payment of registration fees.	X		Engineering estimates.
S-Se-1	IDAPA 16.01.01.590 and 40CFR60.80 through 85	Sulfuric Acid Plant NSPS standards: 4 lbs SO_2/ton and acid mist 0.15 lbs/ton 100% acid produced.	X		CEMs and source testing.
S-Nb-1	IDAPA 16.01.01.590	Natural gas fired boiler (PTC 29-00003) subject to NSPS emission limit for NO_x (as NO_2) not to exceed 0.10 lb/MM Btu.	X		Initial performance test and record keeping.

S-Pa-1	IDAPA 16.01.01.590 and 40CFR60.210-214	Superphosphoric Acid production facilities subject to NSPS emission limit for F^- ; monitoring requirements; and test procedures.		X	Compliance test and record keeping.
Facility	IDAPA 16.01.01.591 and 40CFR61.200 through 205	Phosphogypsum stacks shall not emit more than 20 cPi/m^2-s radon-222 into the air.	X		EPA Method 115 and record keeping .
Facility	IDAPA 16.01.01.625	20 percent opacity rule as determined in Procedures Manual for Air Pollution Control, Sec II.	X		Procedure for monitoring VE outlined in the rule.
Facility	IDAPA 16.01.01.650 through 651	Control of fugitive dust.	X		Reasonable precautions.
S-Nb-1 and S-Pa-3	IDAPA 16.01.01.675 through 676	Particulate matter emission limitation for fuel burning equipment having max. input cap. of $\geq$ 10 MM Btu/hr and commencing operation after 10/1/79.	X		Engineering estimates.
S-D-1 S-Ca-1 S-Cb-1 S-Fa-2 S-Pa-2	IDAPA 16.01.01.677	Particulate matter emission limitation for fuel burning equipment commencing operation before 10/1/79 or having max. input cap. of $\leq$ 10 MM Btu/hr.	X		Engineering estimates.
S-D-1 S-Ca-1 S-Cb-1 S-Pa-1 S-Fa-1/2/3	IDAPA 16.01.01.702	Particulate matter emission limitations for process equipment by process weight ratio. $E = 1.12(PWR)^{0.27}$	X		Source testing and record keeping.
S-Ca-1 S-Cb-1	IDAPA 16.01.01.729	Sulfur content in coal not to exceed 1.0% sulfur by weight.	X		Obtain guarantee from supplier.
S-Ca-1 S-Cb-1 S-Pa-1 S-Fa-1	IDAPA 16.01.01.751.01 and 751.03	Fluoride emission limitations from fertilizer plant sources not to exceed 0.30 lb F^-/ton P_2O_5 input to the calciner operation or source permit limits in section 751.03.	X		Source testing and record keeping.
Facility	IDAPA 16.01.01.775 through 776.01	Control of odors.	X		Reasonable precautions.
S-D-1 S-Ca-1 S-Cb-1 S-Pa-1 S-Fa-1/2/3	Permit Condition 1.	Allowable mass <particulate> emission rate limitations shown in Permit 13-0420-0003-00 Part III.	X		Source testing and record keeping.

S-D-1	Permit Condition 2.	Particulate and Fluoride emissions limitations from Dryer.	X		Source testing and record keeping .
S-Cb-1	Permit Condition 3.	Particulate and Fluoride emissions limitations from North Calciner.	X		Source testing and record keeping.
S-Pa-1	Permit Condition 6.	Particulate and Fluoride emissions limitations from Phosphoric acid production.	X		Source testing and record keeping.
S-Fa-1/2/3	Permit Condition 7.	Particulate and Fluoride emissions limitations from Diammonium phosphate production.	X		Source testing and record keeping.
S-S-1	Permit Condition 9. (See PTC 029-00003 1/5/96)	Sulfur dioxide and acid mist emission limitations from East sulfuric acid plant.	X		CEMS, source testing and record keeping.
S-Ca-1	Permit Condition 10.	Particulate and Fluoride emissions limitations from #4 Calciner.	X		Source testing and record keeping.
S-Si-1	Permit Condition 11.	NH3 and F emissions from Silica Plant	X		Source testing and record keeping.
S-Nb-1	Permit Condition 12.	B-5 Boiler emissions: PM, PM10, SO2, NOx, VOC, CO, VE.	X		PEMS, Engineering estimates, and record keeping.
Facility	Amended Consent Order dated October 24, 1973.	Dryer emission rate: 51.2 lbs. PM/hr. North Calciner: 47.8 lbs. PM/hr. South Calciner (N/A): 46.3 lbs. PM/hr. <West> Sulfuric Acid Plant (N/A): 27 lbs. SO_2/ton and 28 lbs. SO_x/ton. Condition 10.	X		Source testing and record keeping.
Facility	Additional "Parallel" Permit Conditions	Emission limits identical to Permit Conditions 1-7 above which were incorporated into the SIP/CFR.	X		See Permit Conditions 1-3, 6,7, 9-12 above.

Section 5A
Compliance Certification at Time of Application
(IDAPA 16.01.01 Rule 314.09.a)

Emissions Unit	Citation	Applicable Requirement	Compliance?		Method Used to Determine Compliance
			Yes	No	
Facility	IDAPA 16.01.01.123	General applicability to facility to provide certification of documents to IDEQ.	X		Submit certified documents to IDEQ.
Facility	IDAPA 16.01.01.124	General applicability to facility to provide truthful, accurate, and complete documents to IDEQ.	X		Submit certified documents to IDEQ.
Facility	IDAPA 16.01.01.125	General applicability to facility to provide documents to IDEQ in a format approved by the Department.	X		Submit documents to IDEQ in a format approved by the Department.
Facility	IDAPA 16.01.01.130 through 136	Upset and breakdown requirements.	X		Record keeping and Reporting
Facility	IDAPA 16.01.01.200 through 223	Procedures and requirements for Permits to Construct		X	Minor New Source Review Permits may not have been timely obtained.
Facility	IDAPA 16.01.01.300 through 316	Procedures and requirements for Tier I Operating Permits.	X		Submit application for and obtain a permit.
Facility	IDAPA 16.01.01.326 through 329	Additional contents of Tier I Operating Permits - Excess emissions.	X		Engineering estimates
Facility	IDAPA 16.01.01.525 through 527, 528 through 537	Registration of air pollutants and payment of registration fees.	X		Engineering estimates.
S-Se-1	IDAPA 16.01.01.590 and 40CFR60.80 through 85	Sulfuric Acid Plant NSPS standards: 4 lbs SO_2/ton and acid mist 0.15 lbs/ton 100% acid produced.	X		CEMs and source testing.
S-Nb-1	IDAPA 16.01.01.590	Natural gas fired boiler (PTC 29-00003) subject to NSPS emission limit for NO_x (as NO_2) not to exceed 0.10 lb/MM Btu.	X		Initial performance test and record keeping.

This appears to be - an extra copy of Section 5A

S-Pa-1	IDAPA 16.01.01.590 and 40CFR60.210-214	Superphosphoric Acid production facilities subject to NSPS emission limit for F^-; monitoring requirements; and test procedures.		X	Compliance test and record keeping.
Facility	IDAPA 16.01.01.591 and 40CFR61.200 through 205	Phosphogypsum stacks shall not emit more than 20 cPi/m^2-s radon-222 into the air.	X		EPA Method 115 and record keeping .
Facility	IDAPA 16.01.01.625	20 percent opacity rule as determined in Procedures Manual for Air Pollution Control, Sec II.	X		Procedure for monitoring VE outlined in the rule.
Facility	IDAPA 16.01.01.650 through 651	Control of fugitive dust.	X		Reasonable precautions.
S-Nb-1 and S-Pa-3	IDAPA 16.01.01.675 through 676	Particulate matter emission limitation for fuel burning equipment having max. input cap. of $\geq$ 10 MM Btu/hr and commencing operation after 10/1/79.	X		Engineering estimates.
S-D-1 S-Ca-1 S-Cb-1 S-Fa-2 S-Pa-2	IDAPA 16.01.01.677	Particulate matter emission limitation for fuel burning equipment commencing operation before 10/1/79 or having max. input cap. of $\leq$ 10 MM Btu/hr.	X		Engineering estimates.
S-D-1 S-Ca-1 S-Cb-1 S-Pa-1 S-Fa-1/2/3	IDAPA 16.01.01.702	Particulate matter emission limitations for process equipment by process weight ratio. $E = 1.12(PWR)^{0.27}$	X		Source testing and record keeping.
S-Ca-1 S-Cb-1	IDAPA 16.01.01.729	Sulfur content in coal not to exceed 1.0% sulfur by weight.	X		Obtain guarantee from supplier.
S-Ca-1 S-Cb-1 S-Pa-1 S-Fa-1	IDAPA 16.01.01.751.01 and 751.03	Fluoride emission limitations from fertilizer plant sources not to exceed 0.30 lb F^-/ton P_2O_5 input to the calciner operation or source permit limits in section 751.03.	X		Source testing and record keeping.
Facility	IDAPA 16.01.01.775 through 776.01	Control of odors.	X		Reasonable precautions.
S-D-1 S-Ca-1 S-Cb-1 S-Pa-1 S-Fa-1/2/3	Permit Condition 1.	Allowable mass <particulate> emission rate limitations shown in Permit 13-0420-0003-00 Part III.	X		Source testing and record keeping.

S-D-1	Permit Condition 2.	Particulate and Fluoride emissions limitations from Dryer.	X		Source testing and record keeping .
S-Cb-1	Permit Condition 3.	Particulate and Fluoride emissions limitations from North Calciner.	X		Source testing and record keeping.
S-Pa-1	Permit Condition 6.	Particulate and Fluoride emissions limitations from Phosphoric acid production.	X		Source testing and record keeping.
S-Fa-1/2/3	Permit Condition 7.	Particulate and Fluoride emissions limitations from Diammonium phosphate production.	X		Source testing and record keeping.
S-S-1	Permit Condition 9. (See PTC 029-00003 1/5/96)	Sulfur dioxide and acid mist emission limitations from East sulfuric acid plant.	X		CEMS, source testing and record keeping.
S-Ca-1	Permit Condition 10.	Particulate and Fluoride emissions limitations from #4 Calciner.	X		Source testing and record keeping.
S-Si-1	Permit Condition 11.	NH3 and F emissions from Silica Plant	X		Source testing and record keeping.
S-Nb-1	Permit Condition 12.	B-5 Boiler emissions: PM, PM10, SO2, NOx, VOC, CO, VE.	X		PEMS, Engineering estimates, and record keeping.
Facility	Amended Consent Order dated October 24, 1973.	Dryer emission rate: 51.2 lbs. PM/hr. North Calciner: 47.8 lbs. PM/hr. South Calciner (N/A): 46.3 lbs. PM/hr. <West> Sulfuric Acid Plant (N/A): 27 lbs. SO_2/ton and 28 lbs. SO_x/ton. Condition 10.	X		Source testing and record keeping.
Facility	Additional "Parallel" Permit Conditions	Emission limits identical to Permit Conditions 1-7 above which were incorporated into the SIP/CFR.	X		See Permit Conditions 1-3, 6,7, 9-12 above.

Section 5B
Proposed Compliance Demonstration Methods and Schedule for Compliance Certification During Permit Term
(IDAPA 16.01.01 Rule 314.09.b)

Emissions Unit	Citation	Applicable Requirement	Proposed Compliance Demonstration Method	Frequency of Certification
Facility	IDAPA 16.01.01.130 through 136	Upset and breakdown requirements.	Record keeping and reporting.	Annually
S-S-1	IDAPA 16.01.01.590 and 40CFR60.80 through 85	Sulfuric Acid Plant NSPS standards: 4.0 lbs SO_2/ton and acid mist 0.15 lbs/ton 100% acid produced.	CEMs and source testing and record keeping.	Annually
S-Nb-1	IDAPA 16.01.01.590	Natural gas fired boiler (PTC 29-00003) subject to NSPS emission limit for NO_x (as NO_2) not to exceed 0.10 lb/MM Btu.	Initial performance test, PEMS and record keeping.	Annually
S-Pa-1	IDAPA 16.01.01.590 and 40CFR60.210-214	Superphosphoric Acid production facilities subject to NSPS emission limit for F^-; monitoring requirements; and test procedures.	Compliance testing, monitoring and record keeping.	Annually
Facility	IDAPA 16.01.01.591 and 40CFR61.200 through 205	Phosphogypsum stacks shall not emit more than 20 cPi/m^2-s radon-222 into the air.	EPA Method 115 and record keeping. **(NOT Required until permanent closure of stack)**	Annually
Facility	IDAPA 16.01,01.625	20 percent opacity rule as determined in Procedures Manual for Air Pollution Control, Sec II.	Procedure for monitoring VE outlined in "Procedures Manual for Air Pollution Control, Sec. II".	Annually
Facility	IDAPA 16.01.01.650 through 651	Control of fugitive dust.	Reasonable precautions.	Annually
S-Nb-1 and S-Pa-3	IDAPA 16.01.01.675 through 676	PM emission limitation for fuel burning equipment having max. input cap. of $\geq$ 10 MM Btu/hr and commencing operation after 10/1/79.	Engineering estimates.	Annually

S-D-1 S-Ca-1 S-Cb-1 S-Fa-2 B-3 Boiler S-Pa-2	IDAPA 16.01.01.677	PM emission limitation for fuel burning equipment commencing operation before 10/1/79 or having max. input cap. of ≤ 10 MM Btu/hr.	Engineering estimates.	Annually
S-D-1 S-Ca-1 S-Cb-1 S-Pa-1 S-Fa-1/2/3	IDAPA 16.01.01.702	PM emission limitations for process equipment by process weight ratio. $E = 1.12(PWR)^{0.27}$	Source testing and record keeping.	Annually
S-Ca-1 S-Cb-1	IDAPA 16.01.01.729	Sulfur content in coal not to exceed 1.0% sulfur by weight.	Obtain guarantees from supplier.	Annually
S-Ca-1 S-Cb-1 S-Pa-1 S-Fa-1	IDAPA 16.01.01.751.01 and 751.03	Fluoride emission limitations from fertilizer plant sources not to exceed 0.30 lb F^-/ton P_2O_5 input to the calciner operation or source permit limits in section 751.03.	Source testing and record keeping.	Annually
Facility	IDAPA 16.01.01.775 through 776.01	Control of odors.	Reasonable precautions.	Annually
S-D-1	Permit Condition 2.	Particulate and Fluoride emissions limitations from Dryer.	Source testing and record keeping.	Annually
S-Cb-1	Permit Condition 3.	Particulate and Fluoride emissions limitations from North Calciner.	Source testing and record keeping.	Annually
S-Pa-1	Permit Condition 6.	Particulate and Fluoride emissions limitations from Phosphoric acid production.	Source testing and record keeping.	Annually
S-Fa-1/2/3	Permit Condition 7.	Particulate and Fluoride emissions limitations from Diammonium phosphate production.	Source testing and record keeping.	Annually
S-S-1	Permit Condition 9.	Sulfur dioxide and acid mist emission limitations from East sulfuric acid plant.	Source testing and record keeping.	Annually

S-Ca-1	Permit Condition 10.	Particulate and Fluoride emissions limitations from #4 Calciner.	Source testing and record keeping.	Annually
S-Si-1	Permit Condition 11.	NH_3 and F emissions from Silica Plant.	Source testing and record keeping.	Annually
S-Nb-1	Permit Condition 12.	B-5 Boiler emissions: PM, PM_{10}, SO_2, NOx, VOC, CO, VE.	PEMS, engineering estimates and record keeping.	Annually
Facility	Amended Consent Order dated October 24, 1973	Dryer emission rate: 51.2 lbs. PM/hr. North Calciner: 47.8 lbs. PM/hr. South Calciner (N/A): 46.3 lbs. PM/hr. <West> Sulfuric Acid Plant (N/A): 27 lbs. SO_2/ton and 28 lbs. SO_X/ton. Condition 10.	Source testing, monitoring and record keeping.	Annual
Facility	Additional "Parallel" Permit Conditions	Emission limits identical to Permit Conditions 1-7 above which were incorporated into the SIP/CFR.	Source testing and record keeping. (See Permit Conditions 1-7 above)	Annual (See Permit Conditions 1-7 above)

Section 7
Excess Emissions Procedures
IDAPA 16.01.01 Rule 133.02 and 134.04

The following excess emissions procedures are submitted by Nu-West in accordance with IDAPA 16.01.01.133.04.b and IDAPA 16.01.01.134.06.c. There are processes in the facility that may emit in excess of permitted emission limits during normal start-up, shutdown, or scheduled maintenance. In addition, unexpected upsets or breakdowns can occur. These processes are discussed below as well as the excess emissions procedures taken to minimize the environmental impact of these events.

Area 1 - #4 Calciner and North Calciner

During a cold-startup the calciner beds must be fed with 100% dry or pre-calcined ore. This operation continues until the calciner bed compartments have been loaded with a predetermined quantity of ore and have reached a predetermined temperature. When the correct operational parameters are reached, wet ore may then be started into the calciner feed. Procedures to minimize excess emissions are written into the policy of operational startup of the plants.

The above procedure results in emissions which may exceed visible emissions limitations specified in IDAPA 16.01.01.625 (ie; 20% opacity by VE). Excess emissions of other pollutants from calciner operations listed on sheets "ER-5 and ER-6" in section 3 of this application would also be likely.

The information required at IDAPA 16.01.01.314.03 is as follows:

(03.a) The equipment identified as the #4 Calciner can be cross-referenced as S-Ca-1 and North Calciner can be cross-referenced as S-Cb-1 in this application.
(03.b) The specific pollutants likely to be emitted in excess of applicable standards are PM and Fluorides.
(03.c) The estimated amount of excess emissions expected to be released during each event would be extremely difficult to quantify, but the term 'excess' implies greater than the emission limit. (03.d) The expected duration of each excess emissions event would depend on the individual circumstances of each event.
(03.e) Efforts to minimize the amount and duration of each excess emissions event will be maintained. Excess emissions may be unavoidable for any of the three types of excess emissions events: startup, shutdown, and scheduled maintenance, because the pollution control devices associated with this equipment are essential to its operation.
(03.f) The frequency at which the three types of excess emissions events are expected to occur cannot be specified.
(03.g.i) Scheduled maintenance is needed when the operating equipment is not functioning properly, or when pollution control equipment is not functioning properly.
(03.g.ii) Scheduled maintenance is usually performed during periods when operation of the emissions unit or other sources has been reduced or ceased. Maintenance to the equipment usually cannot be affected without reducing or ceasing operation.

(03.g.iii) Maintenance is scheduled to minimize downtime, minimize excess emissions; to optimize performance of the equipment and control devices, and maximize on-stream time. Good engineering practices are followed when performing scheduled maintenance.
(03.g.iv) Where applicable, it may be necessary to by-pass, take off line, or operate pollution control equipment at reduced efficiency while maintenance is being performed in order to prevent greater excess emissions from occurring if the entire process were shut down.
(03.g.v) Auxiliary air pollution control equipment is not applicable to this equipment.
(03.h) Good engineering practices are followed relative to this equipment. Modifications and redesign are pursued when they are efficacious.
(03.i) Detailed specification of the procedures to be followed by the owner or operator which will minimize excess emissions at all times during startup, shutdown, and scheduled maintenance follow this section.

IV. Start Up Procedure - General

Start up of the calcination system involves preheating the calcination Reactor, and starting beds, to operating temperatures. Concurrently, the associated equipment must also be started so that rock is available for the calcination Reactor when operating temperature is attained.

A starting bed of dry rock is added to the preheat compartment and with fluidizing air passing through the Reactor, preheating is begun with the preheat burners located in the cooling compartment of the Reactor. As the firing rate is increased, the preheat temperature is held at 300°F maximum by water spray in the preheat compartment. When the air temperature in the calcining compartment approaches 600°F, the starting bed of rock is transferred to the calcining compartment and additional rock added to the preheat compartment. Heating is continued with the preheat burner until a calcining bed temperature of 1150°F is attained. At this time, the fuel oil guns are inserted in the calcining compartment and heating is continued by direct bed fuel burning and at 1350°F the fuel gas guns may be used. The preheat burner, having served its function, is now turned off. Preheating is concluded when the calcining bed is heated to calcination temperature. At this time, rock feed is started to the Reactor and continuous operation of the Reactor has commenced. Here after, calcining compartment temperature will be controlled by the fuel rate, preheat compartment temperature controlled by water spray or feed addition.

When the volume (or bed level) of the preheat and calcining compartments reach a predetermined level, transfer to the cooling compartment and product removal from the Reactor is started.

The cooling system is started when the cooling compartment's bed volume is approaching the predetermined bed level. At this time, the after cooler fluidizing blower is adjusted to design flow rate. Feed to this system is begun by manually opening the transfer valve from the Calcining Reactor. Adjustment of the hot rock transfer rate, fluidizing air and spray water is made to maintain the cooler bed and cyclone dust collector operating temperature at about 250°F. Final adjustments of all process parameters are then made to obtain complete integration of the calcining and cooling systems so that both systems act as one continuous operating unit and all control instruments can be switched to automatic control.

Caution

During periods of start up it is important that the preheat compartment temperatures do not become excessively high. Temperatures above 400°F can be detrimental to the carbon steel components, the exhaust fan in particular. To hold this temperature down, the preheat bed spray system should be activated to open the water valves allowing spray water to enter the system. In the event that this does not correct the situation it will be necessary to put the feed system into operation.

V. Specific Start Up Instructions

A. Preliminary Start Up Check-Off List and Preparations

1. Energize instrument panel and all electrical components at the motor control center by closing all of the following switches:

   - Calciner Feed Conveyors and Feeder
   - Calciner Exhaust Fan
   - Calciner Fluidizing Blower
   - After Cooler Fluidizing Blower
   - Scrubber Effluent Tank Pumps
   - After Cooler Cyclone Gate Valve
   - Bed Oil Gun Pumps

2. Check and adjust instrument air supply to 60-80 psig.
3. Check and adjust instrument air supply to all controllers and operators to 20 psig.
4. Adjust all purge air valves to all pressure taps, sight glasses. (Fluidizing Blowers must be running).
5. Set all manual loading stations on panel board to 0 psig.
6. Set all automatic controllers on panel board to "MANUAL". Also set all output pressures to 0 psig.

7. Adjust all set points on automatic controllers to predetermined readings.

8. Make sure the following materials are available:

   a. Feed bins full

   b. Fuel oil, fuel gas, and water

9. <u>Curing of Refractories at Initial Startup</u>

   a. <u>Air Drying of Refractories</u>

   Each compartment of the reactor plus the hot cyclones are refractory lined. These refractories must be cured prior to actual startup of the plant.

   Remove the pipe caps from the curing vents in the reactor roof. At this time a thorough check of the reactor interior is recommended. Be sure that the refractory work is 100% completed, that all construction tools and trash are removed and that all nozzles and internal parts are in place. Allow the reactor to air dry for 24 hours.

   Initial drying of the refractories is accomplished by blowing fluidizing air through the system. Close all manholes. Air is vented through the scrubber to the stack. With all manholes closed, continue refractory drying by blowing air through the system for at least 24 hours. During this time check and record the pressure drop across the Reactor constriction plate and the two domes with the solids discharge valve closed. Pressure drops should be checked and recorded for about 50%, 75%, 100% and 115% of normal design air flow rate. Record, along with the air flow rate and constriction plate pressure drops, the air temperatures in the reactor.

b. With exhaust fan, and fluidizing air blowers "ON", and water flowing in scrubber, ignite preheat burner at minimum flame (please refer to Preheat Burner Instructions). Close the Aftercooler exhaust gas damper to prevent hot gases from passing through the Aftercooler. Hold the minimum fire on the burner for 24 hours. The cooling compartment temperature should stabilize at 150-250°F. Then increase temperature in the cooling compartment 25°F every half hour until 600°F temperature is attained. Maintain this temperature for at least 24 hours. When the cooling compartment has dried out, increase the temperature so that 600°F is maintained in the freeboard of the calcining compartment for at least another 24 hours. Check the circumference of the belly band and if all areas are warm to the touch raise the temperature in the calcining compartment at the same rate - 25°F every half hour.

After the 24 hours of calcining compartment curing has been accomplished, increase the Preheat Burner firing rate again so that a 50°F per hour increase is achieved in the hot windbox beneath the preheat dome. At 600°F hot windbox temperature, hold for 24 hours. The preheat compartment spray system should be activated to hold the preheat compartment temperature below 300°F.

This completes the curing. The detailed startup procedures in the following section should be followed with the addition of the starting bed. Remember to replace the vent caps in the roof.

B. Detailed StartUp Procedures

For a normal startup after the refractory has been cured the following procedures are followed:

1. Start water flow to scrubbers and adjust to desired rates.

2. Start Exhaust Fan, and adjust air flow to desired rate.

3. Start Aftercooler fluidizing blower and adjust air flow to desired rate with the aftercooler exhaust gas damper open.

4. Adjust exhaust fan damper in calciner outlet gas duct to provide 1 to 2 inches water gauge suction in preheat compartment freeboard. Throughout the startup period readjust the damper to hold this range.

5. Adjust Aftercooler exhaust gas damper to maintain Aftercooler Freeboard pressure slightly above hot windbox pressure. Readjust as required during startup.

6. Add starting bed to preheat compartment.

7. Please refer to Preheat Burner Instructions and Preheat Burner Piping Diagram.

8. Light preheat burners on low fire and maintain low fire position until freeboard temperature in each compartment underneath a dome is stabilized. Raise the temperature in the cooling compartment 50°F, per hour to 600°F and hold there for 12 hours. Check the circumference of the belly band and if all areas are warm to the touch raise the calcining compartment temperature 50°F an hour to 600°F and hold for 12 hours. Finally the hot windbox temperature is raised in a similar manner.

9. As firing rate is increased, the preheat compartment spray system should be activated to hold preheat compartment temperature below 300°F with the water spray.

10. When calcine temperature points reach 600°F, start transferring rock from preheat compartment by manual control of transfer valve. Also add additional feed to preheat compartment to maintain preheat bed depth at 24" as indicated by bed depth gauge. Reading should = 16" W.C.

11. At this point, there may be a spread in temperatures in the calcining compartment either before or during the addition of bed. When a sufficient bed depth is reached all thermocouples will be immersed and the situation will correct itself.

12. Add bed rapidly to a depth of 20" as shown by calciner bed depth gauge. Adjust feed and transfer rate to reach a bed depth of 40" W.C. when bed temperature reaches 1000-1100°F.

13. Continue adjusting exhaust damper to Produce 1 to 2 inches suction in Preheat Compartment freeboard.

Adjust aftercooler exhaust gas damper as required to maintain aftercooler pressure above hot windbox pressure.

14. When the bed temperature reaches 1150°F with a depth of 40" start bed gun oil firing system at minimum oil rate.

15. When oil bed burning has been established, as indicated by a rapid rise in temperature, cut off the Preheat Burner as outlined below. This is done by slowly reducing the oil or gas rate to the burner so that a slow, not rapid, cooling takes place in the cooling compartment. This is to avoid shock cooling of the calcining constriction arch. This temperature decrease should be approximately 50°F per hour until normal operating temperature in the cooling compartment is reached. Cut off the preheat burner when it reaches minimum firing rate.

16. When proper bed burning of the oil is verified, adjust the fluidizing air to design flow and raise oil rate, evenly distributed to guns, to maintain steady temperature increase. Continue feeding make-up feed (for starting bed) until a final calcine compartment bed depth of 50" W.C. is reached.

    Caution: Adjust bed addition rate so that the bed temperature does not go below 1150°F.

17. Continue to maintain preheat compartment temperature at 220°F with spray water control and "HOT" cyclone temperatures at 1100°F. At no time should preheat temperature exceed 400°F.

18. Adjust aspirating air discharge valve to provide about 2500 SCFM aspirating air flow.
19. Start feed conveying system to refill feed bins.
20. Start product conveyors and cyclone rotary valves.
21. Start flow of rock feed at lowest rate possible and gradually increase at intervals, simultaneously start transfer from calcine to cooler compartment and begin slow discharge to aftercooler. Maintain Aftercooler's temperature between 250°F and 300°F by spray quench water adjustments.
22. During this time, the calcining temperature should be controlled at 1450°F by increasing fuel rate to bed guns.
23. When preheat compartment bed depth is maintained at 24" W.C. switch preheat bed depth controller to "AUTO".
24. When the calciner bed depth is maintained at 50" W.C. and cooling compartment bed depth is maintained at 24" W.C. by balancing the incoming feed with product discharge switch calcining bed depth controller and cooling compartment bed depth controller to "AUTO".

25. When fuel rate has been adjusted to maintain proper calcination bed temperature, switch instrument to "AUTO"

26. When Aftercooler temperature has been stabilized at 250°F and aftercooler bed depth has stabilized at 30" W.C., switch cooler recorder controller to "AUTO".

VI. Normal Operation

A. Normal Operating Adjustments

In the Phosphate rock calcination system, the critical operating parameters are controlled automatically. However, a few controls on the cooling and calcination systems are manually set and adjusted by the operator at established predetermined operating levels.

1. Calcining System

The only operator adjustments required in this system are the fluidizing air rate, preheat watersprays, aspirating air rate and feed rate. The flow rates are set to maintain proper fluidizing velocities within the Reactor and proper excess air for complete combustion of the fuel. The Reactor capacity (and thus the fuel rate to the Reactor) is merely controlled by increasing or decreasing the feed rate and air rate to maintain sufficient excess air. All other control points such as bed depth levels, and calcining bed temperatures will automatically be controlled by instrumentation

2. Cooling System

Operator adjustments will be raquired to maintain fairly constant air rates to the aftercooler. Temperature control and bed depth of the aftercooler will be automatically controlle

B. Data Recording

There are numerous indicating instruments in the entire system on the panel board. These are to assist personnel in the operation of the plant. In order to make full use of these instruments and also obtain operating history of the plant, daily log sheets should be kept by the operators. These sheets should contain spaces to record all the systems' temperatures and pressures, in addition to air, oil flow and gas flow and other measured parameters on the panel boards. Space should also be provided to log any unusual occurences that may have taken place.

Having the operator maintain daily log sheet also serves to keep the operator alert and insures that he is checking the panel.

C. Normal Problems, Troubleshooting, and Corrective Action

1. Pressure Taps

With the two sets of pressure taps furnished, troubleshooting is comparatively easy. The difference between any two adjacent pressure taps in the system's pressure gauge must equal the differential gauges which control Reactor levels for the same points. It would normally be expected that when a tap plugged, it could not get the pressure impulse and would drop to a lower or zero value. This is not the case, however, since each tap is supplied with purge air which will force the meter reading off either of two ways.

NORTH CALCINER JOB DESCRIPTION

A-OPERATOR RESPONSIBILITIES

The A-Operator is responsible for the safe, efficient operation of the Calciner and Dryer for the duration of his shift. It will be his responsibility to see that the Calciner is operated in accordance with normal operating parameters included in this manual.

Listed below are some standard operating procedures that are done on a routine basis:

1. The A-Operator will take hourly readings from the board and will record these on log sheets. All readings required on the log sheet that are taken outside of this control room will be taken by the B-Operator.

2. In order to maintain proper temps in the Calciner, a mixture of dry and wet feed is needed. It will be the A-Operator's responsibility to adjust dry as needed, but to maintain the lowest setting as possible and still maintain proper preheat temps.

3. On Monday of each week, the A-Operator will switch internal transfer valves. This insures that both transfer valves are in good working condition.

5. The A-Operator is responsible for unit housekeeping.

IV. START-UP PROCEDURE - GENERAL

Start-up of the calcination system involves preheating the calcination Reactor, and starting beds, to operating temperatures. Concurrently, the associated equipment must also be started so that rock is available for the calcination Reactor when operating temperature is attained.

A starting bed of dry rock is added to the preheat compartment and with fluidizing air passing through the Reactor, preheating is begun with the preheat burner located in the cooling compartment of the Reactor. As the firing rate is increased, the preheat temperature is held at 500°F max. by water spray in the preheat compartment. When the air temperature in the calcining compartment approaches 600°F, the starting bed of rock is transferred to the calcining compartment and additional rock added to the preheat compartment. Heating is continued with the preheat burner until the calcining bed temperature reaches the auto ignition temperature of the bed fuel, which is 1200°F for No. 2 oil and 1350°F for natural gas. At this time, the fuel guns are inserted in the calcining compartment and heating is continued by direct bed fuel burning. The preheat burner, having served its function, is now turned off. Preheating is concluded when the calcining bed is heated to calcination temperature. At this time, rock feed is started to the Reactor and continuous operation of the Reactor has commenced. Hereafter calcining compartment temperature will be controlled by the fuel rate and preheat compartment temperature controlled by water spray or feed addition. When the volume (or bed level) of the preheat and calcining compartments reach a predetermined level, transfer to the cooling compartment and product removal from the Reactor is started.

IV. START-UP PROCEDURE - GENERAL (Continued)

The cooling system is started when the cooling compartment's bed volume is approaching the predetermined bed level. At this time, the cooler fluidizing blower is adjusted to design flow rate. Feed to this system is begun by manually opening the transfer valve from the Calcining Reactor. Adjustment of the hot rock transfer rate, fluidizing air and spray water is made to maintain the cooler bed and cyclone dust collector operating temperature at about 250°F. Final adjustments of all process parameters are then made to obtain complete integration of the calcining and cooling systems so that both systems act as one continuous operating unit and all control instruments can be switched to automatic control.

CAUTION: During periods of start-up it is important that the preheat compartment temperatures do not become excessively high. Temperatures above 600°F can be detrimental to the carbon steel components, the exhaust fan in particular. To hold this temperature down, the preheat bed spray system should be activated to open the water valves allowing spray water to enter the system. In the event that this does not correct the situation it will be necessary to put the feed system into operation.

V. SPECIFIC START-UP INSTRUCTIONS

A. PRELIMINARY START-UP CHECK-OFF LIST AND PREPARATIONS

1. Energize instrument panel and all electrical components at the motor control center by closing all of the following switches:

   -Calciner Feed Conveyors and Feeder

   -Calciner Exhaust Fan

   -Calciner Fluidizing Blower and Aux. Lube Oil Pump
   -Aspirating Air Blower
   -Cooler Fluidizing Blower
   -Scrubber Effluent Pump
   -After Cooler Cyclone Gate Valve
   -Fuel Oil Pumps (If operating on stand-by fuel).
2. Check and adjust instrument air supply to 60-80 psig.
3. Check and adjust instrument air supply to all controllers and operators to 20 psig.
4. Adjust all purge air valves to all pressure taps, sight glasses. (Fluidizing Blowers must be running.)
5. Set all manual loading stations on panel board to 0 psig.
6. Set all automatic controllers on panel board to "MANUAL." Also set all output pressures to 0 psig.
7. Adjust all set points on automatic controllers to predetermined readings.
8. Make sure the following materials are available:

   a. Feed bins full

   b. Fuel, gas, and water

V. SPECIFIC START-UP INSTRUCTIONS (Continued)

A. PRELIMINARY START-UP CHECK-OFF LIST AND PREPARATIONS (Continued)

It is hoped that the eventual plant operators will have been chosen and indoctrinated with a number of short sessions over a period of several weeks in the general ideas of fluidization, plant flow, interlocks of the system, functions of each piece of equipment and reactions in the system should any one piece of equipment fail, or fail to function properly. While this may seem a large order, an operator's function is to take the proper corrective action when unusual conditions arise. Only an alert, well-informed, and confident individual can fulfill these requirements.

9. At initial start-up, dry out refractory.

Allow at least 48 hours for the procedure described below.

a. With all manhole covers open, air dry Reactor for at least 24 hours.

b. Close all manhole covers, start exhaust fan and fluidizing blowers and blow air through Reactors (with no heat) for at least 12 hours. Check all motors and equipment for proper rotation.

c. With exhaust fan and fluidizing air blower "ON", and water flowing in scrubber, ignite preheat burner at minimum flame (refer to Preheat Burner Instructions) and increase temperature in cooling compartment 50°F per hour until 500-600°F

V. SPECIFIC START-UP INSTRUCTIONS (Continued)

A. PRELIMINARY START-UP CHECK-OFF LIST AND PREPARATIONS (Continued)

temperature is reached. Maintain this temperature for at least 12 hours. When the cooling compartment has dried out, increase the temperature so that 500-600°F is maintained in the freeboard of the calcining compartment for at least another 12 hours. Shut system down or proceed to Part B.

V. SPECIFIC START-UP INSTRUCTIONS (Continued)

B. DETAILED START-UP PROCEDURES

Following preliminary start-up (Part A), and curing:

1. Start exhaust fan and calciner fluidizing air blower and adjust air flow to desired rate. Also start aspirating air blower.
2. Start cooler fluidizing blower and adjust air flow to desired rate.
3. Start water flow to scrubber and adjust to desired rates.
4. Adjust exhaust fan damper in calciner outlet gas duct to provide 1 to 2 inches water gauge suction in preheat compartment freeboard. Also adjust damper in after-cooler outlet gas duct to provide 1 to 2 inches water gauge pressure in after-cooler freeboard above calcining compartment freeboard pressure. Throughout the start-up period readjust the dampers to hold this range.
5. Add starting bed to preheat compartment.
6. Refer to Preheat Burner instructions and Preheat Burner Piping Diagram.
7. Light preheat burners on low fire and increase 50° - 100°F/Hr until cooling compartment thermocouple registers 1000°F. Hold at this point until calcine bed temperature reaches 600°F. If the 600°F point is not reached in stated time, increase gas rate to preheat burner until cooling compartment registers 1500°F, to attain the 600°F calcine bed temperature.
8. As firing rate is increased, the preheat compartment spray system should be activated to hold preheat compartment temperature below 500°F with the water spray.

V. SPECIFIC START-UP INSTRUCTIONS (Continued)

B. DETAILED START-UP PROCEDURES (Continued)

9. When calcine temperature points reach 600°F, start transferring rock from preheat compartment by manual control of transfer valve. Also add additional feed to preheat compartment to maintain preheat bed depth at 24" W. C. as indicated by bed depth gauge. Reading should = 16" W. C.

10. At this point, there may be a spread in temperatures of the calcine compartment either before or during the addition of bed. When a sufficient bed depth is reached all thermocouples will be immersed and the situation will correct itself.

11. Add bed rapidly to a depth of 20" as shown by calciner bed depth gauge. Adjust feed and transfer rate to reach a bed depth of 40" W. C. when bed temperature reaches 1350-1400°F, (1200°F if using No. 2 oil).

12. Keep adjusting exhaust damper to produce 1 to 2 inches suction in Preheat Compartment freeboard, also adjust after-cooler exhaust damper to maintain 1 to 2 inches differential pressure between after-cooler freeboard and calcining compartment freeboard.

13. When bed temperature reaches 1350°F (1200°F if using No. 2 oil), with a depth of 40", start bed gun firing system at minimum rate.

14. When bed burning has been established, as indicated by a rapid rise in temperature, cut off preheat burner. This is done by slowly reducing the fuel rate to the burner so that a

V. SPECIFIC START-UP INSTRUCTIONS (Continued)

B. DETAILED START-UP PROCEDURES (Continued)

slow, not rapid, cooling takes place in the cooling compartment. This is to avoid shock cooling of the calcining constriction arch.

15. When proper bed burning of the gas (or oil) is verified, adjust the fluidizing air to design flow and raise the fuel rate, evenly distributed to guns, to maintain steady temperature increase. Continue feeding make-up feed (for starting bed) until a final calcine compartment bed depth of 50" W.C. is reached.

    CAUTION: Adjust bed addition rate so that the bed temperature does not go below 1350°F. (1200°F is using No. 2 oil).

16. Continue to maintain preheat compartment temperature at 450°F with spray water control. At no time should preheat temperature exceed 600°F.

17. Start feed conveying system to refill feed bins.

18. Start product conveyors and cyclone rotary valves.

19. Start flow of rock feed at lowest rate possible and gradually increase at intervals, simultaneously start transfer from calcine to cooler compartment and start slow discharge to spray cooler. Maintain cooling system's temperature between 250°F and 300°F by spray quench water adjustments.

20. During this time, the calcining temperature should be controlled at 1500°F by increasing fuel rate to bed guns while maintaining 3 to 4% oxygen in stack gases.

V. SPECIFIC START-UP INSTRUCTIONS (Continued)

B. DETAILED START-UP PROCEDURES (Continued)

21. When preheat compartment bed depth is maintained at 24" W. C. switch preheat bed depth controller to "AUTO".

22. When the calciner bed depth is maintained at 50" W. C. and cooling compartment bed depth is maintained at 24" W. C. by balancing the incoming feed with product discharge switch calcining bed depth controller and cooling compartment bed depth controller to "AUTO".

23. When fuel rate has been adjusted to maintain proper calcination bed temperature, switch instrument to "AUTO".

24. When cooling Reactor temperature has been stabilized at 250°F and cooling Reactor bed depth has stabilized at 30" W. C., switch cooler recorder controller to "AUTO".

VI. NORMAL OPERATION

A. NORMAL OPERATING ADJUSTMENTS

In the Phosphate rock calcination system, the critical operating parameters are controlled automatically. However, a few controls on the cooling and calcination systems are manually set and adjusted by the operator at established predetermined operating levels.

1. Calcining System

The only operator adjustments required in this system are the fluidizing air rate, exhaust fan suction, preheat water sprays and feed rate. The flow rates are set to maintain proper fluidizing velocities within the Reactor and proper excess air for complete combustion of the fuel. The Reactor capacity (and thus the fuel rate to the Reactor) is merely controlled by increasing or decreasing the feed rate and air rate to maintain sufficient excess air. All other control points such as bed depth levels, and calcining bed temperatures will automatically be controlled by instrumentation.

2. Cooling System

Operator adjustments will be required to maintain fairly constant air rates to the spray cooler. Temperature control and bed depth of the spray cooler will be automatically controlled.

VI. NORMAL OPERATION (Continued)

B. DATA RECORDING

There are numerous indicating instruments in the entire system on the panel board. These are to assist personnel in the operation of the plant. In order to make full use of these instruments and also obtain operating history of the plant, daily log sheets should be kept by the operators. These sheets should contain spaces to record all the systems' temperatures and pressures, in addition to air and fuel flow, and other measured parameters on the panel boards. Space should also be provided to log any unusual occurrences that may have taken place.

Having the operator maintain daily log sheet also serves to keep the operator alert and insures that he is checking the panel.

Area 2 - East Sulfuric Acid Plant

Startups and shutdowns of the sulfuric acid plants may result in excess emissions, due to lack of or loss of critical operating temperatures which ensure proper control of emissions from the plants. When the critical temperatures are reached, emissions return to previously controlled levels. Procedures to minimize excess emissions are written into the policy of operational startup of the plants.

The excess emissions are SO_2 and/or acid mist which may exceed visible emissions limitations specified in IDAPA 16.01.01.625 (ie; 20% opacity by VE). Upsets/breakdowns and scheduled maintenance shutdowns are reported to the Department in accordance with IDAPA 16.01.01.130 -135.

The information required at IDAPA 16.01.01.314.03 is as follows:

(03.a) The equipment identified as the East Sulfuric Acid Plant can be cross-referenced as S-Se-1 and S-Se-2 in this application.
(03.b) The specific pollutants likely to be emitted in excess of applicable standards are SO_2 and SO_3 /acid mist.
(03.c) The estimated amount of excess emissions expected to be released during each event would be extremely difficult to quantify, but the term 'excess' implies greater than the emission limit. (03.d) The expected duration of each excess emissions event would depend on the individual circumstances of each event.
(03.e) Efforts to minimize the amount and duration of each excess emissions event will be maintained. Excess emissions may be unavoidable for any of the three types of excess emissions events: startup, shutdown, and scheduled maintenance, because the pollution control devices associated with this equipment are essential to its operation.
(03.f) The frequency at which the three types of excess emissions events are expected to occur cannot be specified.
(03.g.i) Scheduled maintenance is needed when the operating equipment is not functioning properly, or when pollution control equipment is not functioning properly.
(03.g.ii) Scheduled maintenance is usually performed during periods when operation of the emissions unit or other sources has been reduced or ceased. Maintenance to the equipment usually cannot be affected without reducing or ceasing operation.
(03.g.iii) Maintenance is scheduled to minimize downtime, minimize excess emissions; to optimize performance of the equipment and control devices, and maximize on-stream time. Good engineering practices are followed when performing scheduled maintenance.
(03.g.iv) Where applicable, it may be necessary to by-pass, take off line, or operate pollution control equipment at reduced efficiency while maintenance is being performed in order to prevent greater excess emissions from occurring if the entire process were shut down.
(03.g.v) Auxiliary air pollution control equipment is not applicable to this equipment.
(03.h) Good engineering practices are followed relative to this equipment. Modifications and redesign are pursued when they are efficacious.
(03.i) Detailed specification of the procedures to be followed by the owner or operator which will minimize excess emissions at all times during startup, shutdown, and scheduled maintenance follow this section.

EAST SULFURIC PLANT STARTUP PROCEDURES & COMMENTS

By Frank Fagnant

Jerry

Shutdown Procedure:

This section is being included because it is very critical and has a direct bearing on how well the plant will restart and how low the emissions can be held.

1. Shut the sulfur pump off.
2. "Blow through" until the burner temperature reaches 1300° - 1400°F.

   Note: This practice is to purge the system (somewhat) of gas for two reasons. 1. It extends the life of the catalyst and 2. It greatly reduces the initial "spike" of the SO2 monitor on startup which is caused by a large volume of residual gas being pushed to the stack after the catalyst and acid have dropped below the conversion & absorbsion temperatures. However, any excess blowing through below the above temp. only has a negative effect on emissions because it further reduces the temp of the catalyst and prolongs heat-up time.
3. Slow the main blower down to between 2000 & 2500 rpm.
4. Shut down the booster blower.
5. Shut down the main blower.

   Note: Steps 3,4 & 5 are strictly to reduce stress and sudden pressure changes in the ductwork and have nothing to do with emission control.
6. Shut down all cooling water pumps immediatly to conserve absorbing tower acid temperatures.
7. As soon as the blowers have stopped completely, close all dampers (B.V. #1 - #7) to retain as much burner and converter heat as possible.

   Note: Current "mechanical difficulties" and inadequate damper position indication have caused us to eliminate B.V. #6 & #7 from this step. However, when working and used properly, they greatly enhance 3rd & 4th bed heat retention during shutdowns and temp. increase rate during startup.

8. Shut down the John Zink furnace.
9. Shut down the recycle & combustion air blowers to retain hot-pass heat exchanger temp.

"Cold" Startup Procedure

~~This procedure applies to shutdowns of 4 hours or more~~ or when the proper post-shutdown procedures were not followed, resulting in excessive heat loss.

Pre-startup:

1. 5 - 10 minutes before startup, start the recycle & combustion blowers and light the John Zink furnace.
2. Hold the furnace on a relatively low rate and allow the temp. to reach 1000°.
3. Open B.V.#1 (burner inlet damper) wide open.
4. Open B.V. #2 (#1 WHB bypass damper) wide open.
5. Leave B.V. #3 (#1WHB outlet damper) closed

   Note: Monitor the 1st bed inlet temp. closely after the initial startup. It will climb rapidly.
6. Open B.V. #5 (#2WHB bypass damper) wide open. Leave B.V. #4, 6 & #7 closed until the respective bed inlet temperatures reach conversion temp. or at least 800°.

   Note: The whole idea behind steps 4, 5 & 6 is to put as much heat as possible, as quick as possible, to the converter beds with the lowest practical burner temp. and sulfur flow rate. The faster the 1st & 2nd beds can be brought up to conversion temp., the lower the initial SO2 discharge will be.
7. Cut back all three sulfur gun block valves to about 1/3 open or less. This is to prevent slugging the burner with an excessive amount of sulfur in relation to the air flow which contributes to excessive emissions.

Startup;

8. Start tail-end booster blower.
9. When the booster blower reaches top speed, open the inlet louvers to approximatly 25% open.
10. When the blower amp. load stabilizes and the burner temp. begins to drop, start the sulfur pump with the auto. con-

trol valve 5% open or less.

11. Adjust the sulfur flow to 10 - 12 gpm and shoot for a burner temp. of around 1600°.
12. Increase the John Zink furnace to max. rate and open the recycle blower louvers wide open to heat the #2 converter (5th bed) as fast as possible.

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13. Start the main blower and adjust the speed to around 2000 rpm.
14. When the burner temp. begins to drop again, increase the sulfur flow with the increasing blower speed & discharge press. until it reaches 18 - 20 gpm.
15. Level burner temp. off at 1600°.
16. Level off the 1st bed inlet temp. as recommended by opening B.V. #3 as needed.

    Note: DO NOT attempt to cool the 1st & 2nd beds by closing the boiler bypass dampers until the outlet dampers are wide open. Doing so will create a restriction in the gas stream which will slow down the air flow through the burner in relation to the sulfur flow. This will cause a "rich" burn & possible flooding of the burner which will increase emissions because of insufficient oxygen, a "cold" converter and low absorbing tower acid temperatures. Also, much-needed steam production will be sacrificed.

17. When B.V. #3 (outlet) is wide open, begin closing B.V. #2 (bypass) as needed to maintain the 1st bed inlet temp.
18. Level off the 2nd bed inlet temp. as recommended by opening B.V. #4 (#2 outlet) as needed. See step # 16.
19. Level off the 3rd bed inlet temp. as recommended by opening B.V. #6 (3rd bed quench air damper) as needed.
20. Level off the 4th bed inlet temp. as recommended by opening B.V. #7 (4th bed quench air damper) as needed.
21. Steps 19 & 20 will decrese the air flow to the burner which will increase its temp. Increase the main blower speed as needed to maintain a steady 1600° burner temp. until ready for a rate increase.
22. Monitor acid temperatures and start cooling water pumps and adjust spray headers as needed to maintain 170° minimum in both absorbing towers.

23. Hold plant at current rate until all 5 converter beds are within the recommended range, both absorbing tower acid temperatures are at least 170° and the SO2 monitor has dropped down to its lowest point and begins to level off. Exception: The rates can be substantially increased with the 4th bed inlet temp. at 740 - 750° minimum with little or no effect on emissions, providing all the other above-mentioned criteria have been met and the sulfur is not increased so much that the conversion capability of the first two beds is exceeded.

"Hot" Startup Procedure

This procedure follows shutdowns of 4 hours or less when proper post-shutdown procedures were followed. It is generally the same as a cold startup with the following exceptions:

5. B.V. #3 (#1WHB outlet) should be opened to at least 1/2 or more. If not, the 1st bed inlet temp. will climb so rapidly that it can overshoot its operating range by as much as 100° before control of it can be regained.
11. Because the plant has retained much of its original heat, the initial startup rate can be increased to approx. 15 gpm and a 1650° - 1700° burner temp. without any increase in emission.
13. For the same reasons as #11, the initial blower speed can be boosted to 2400 - 2500 rpm.
23. Because the 5th bed and the absorbing acid will reach operating temp. much quicker on a hot startup, the plant will take a rate increase fairly well with the 3rd bed inlet at 775° & the 4th bed at 750°, providing they are converting reasonably close to or above their inlet temperatures.

Rate Increase, Option 1

(Current Standard Procedure)

1. Bring the main blower up to approx. 2600 - 2700 rpm.
2. Bring the sulfur flow up a little "behind" the blower to approx. 25 - 26 gpm with a burner temp. of 1700° - 1750°.
3. Hold plant at current rate, making adjustments as needed, until the SO2 monitor again drops back down and begins to level off.
4. Increase rates again to approx. 3000 - 3500 rpm, 27 - 30 gpm and a burner temp. of 1800°.
5. Repeat step 3.
6. Increase rates again to full rate (4200 rpm, 31 - 35 gpm depending on outside temp. and 1900° on burner).

Rate Increase, Option 2

(Will generally apply only to a hot startup)

1. Bring the main blower up to max. recommended speed, usually 4200 rpm.
2. Allow the burner temp. to drop 25° - 30°, then begin in creasing the sulfur flow <u>slowly</u> until the burner reaches 1900°.

   Note: It takes a little practice to develop a feel for how much and how fast to increase the sulfur, but a general rule seems to be .3 - .5 gpm at a time and 15 - 30 minutes to reach 1900°. Adding too much too fast will gaurentee an extended "spike" of the SO2 monitor. See chart for 4/15/94.
3. Continue making necessary adjustments as needed to keep the plant within its operating ranges.
4. If, at any time, the SO2 monitor shows any signs of going over what is normal for the current rate, reduce the sulfur flow and give it a little more time or check for any other reason for the increase.

Personal Note: This rate-increase option is somewhat of a new wrinkle I have been experimenting with and is far from being perfected. I have only been able to apply it to three or four startups, but so far I have not experienced any major emissions difference from the standard option 1 other than the first time or two when I got a little carried away with the sulfur. Its main advantage is that in times of unusually high production priority, it will get the plant up from startup to full rate in considerably less time than multiple increases. However, as stated, this procedure does need further fine-tuning, but I feel that it does have some merit because it gains a little production while keeping SO2 emissions at a minimum. See accompanying SO2 charts. All four rate increases were made with the " one jump" option. The one exception was 3/31. The booster blower tripped out on startup and we brought the front end on without it, resulting in two seperate startups.

Area 3 - DAP Plant

Excess emissions may be experienced during startup of the DAP plant. Proper mole ratios in the granulator feed slurry for optimum operation cannot be reached until the plant is operating. Adjustments are made to reach the proper mole ratios as quickly as possible. When the proper mole ratios are reached, the emissions are managed by plant control equipment.

The above procedure results in emissions which may exceed visible emissions limitations specified in IDAPA 16.01.01.625 (ie; 20% opacity by VE). Excess emissions of other pollutants from DAP operations listed on sheet "ER-11" in section 3 of this application may also be likely. Total startups of the DAP plant are reported to the Department on a monthly basis.

The information required at IDAPA 16.01.01.314.03 is as follows:

(03.a) The equipment identified as the DAP Plant can be cross-referenced as S-Fa-1, 2, & 3 in this application.
(03.b) The specific pollutants likely to be emitted in excess of applicable standards are PM and Fluorides.
(03.c) The estimated amount of excess emissions expected to be released during each event would be extremely difficult to quantify, but the term 'excess' implies greater than the emission limit. (03.d) The expected duration of each excess emissions event would depend on the individual circumstances of each event.
(03.e) Efforts to minimize the amount and duration of each excess emissions event will be maintained. Excess emissions may be unavoidable for any of the three types of excess emissions events: startup, shutdown, and scheduled maintenance, because the pollution control devices associated with this equipment are essential to its operation.
(03.f) The frequency at which the three types of excess emissions events are expected to occur cannot be specified.
(03.g.i) Scheduled maintenance is needed when the operating equipment is not functioning properly, or when pollution control equipment is not functioning properly.
(03.g.ii) Scheduled maintenance is usually performed during periods when operation of the emissions unit or other sources has been reduced or ceased. Maintenance to the equipment usually cannot be affected without reducing or ceasing operation.
(03.g.iii) Maintenance is scheduled to minimize downtime, minimize excess emissions; to optimize performance of the equipment and control devices, and maximize on-stream time. Good engineering practices are followed when performing scheduled maintenance.
(03.g.iv) Where applicable, it may be necessary to by-pass, take off line, or operate pollution control equipment at reduced efficiency while maintenance is being performed in order to prevent greater excess emissions from occurring if the entire process were shut down.
(03.g.v) Auxiliary air pollution control equipment is not applicable to this equipment.
(03.h) Good engineering practices are followed relative to this equipment. Modifications and redesign are pursued when they are efficacious.
(03.i) Detailed specification of the procedures to be followed by the owner or operator which will minimize excess emissions at all times during startup, shutdown, and scheduled maintenance follow this section.

START UP FOLLOWING TURN-AROUND

1.) Follow the same steps as the initial start up procedures and make sure you check any line or equipment that was worked on during turn-around.

START UP FOLLOWING AN EMERGENCY SHUT-DOWN

Power Failure

1.) Check plant out thoroughly to look for problems.

2.) Start Dryer fan.

   A.) Make sure louvers are closed.

   B.) Turn water on dryer duct after fan is running.

3.) Start granulation fan.

4.) Start scrubber system.

   A.) Call phos to start 42% incoming pump.

   B.) Start reactor feed pump to recirculate scrubber acid.

   C.) Start pond water.

5.) Start dry side up.

   A.) If granulator has to be jackhammered or cleaned, do this before starting dry side.

   B.) Start dust fan.

6.) Start Fire.

   A.) Turn on gas and draft to #1 and #3 burners.

   B.) Adjust amount of fire needed on control panel in granulation control room to heat dry side to
   desired temperature.

7.) Start reactor feed acid to preneut tank.

8.) Start ammonia system.

A.) Set ammonia vapor controller (FRC-7) to preneut tank and (FRC-6) to granulator to desired positions.

B.) Set ammonia vapor drum pressure controller (PCR-1) to desired pressure (between 60 and 130 lbs).

C.) Open 35 lb steam outlet manual valve.

D.) Open 125 lb steam outlet manual valve.

E.) Open liquid ammonia manual chain valve on inlet of the vapor drum.

F.) Open outlet manual valve on ammonia (FRC-7) and reactor feed acid block valve (closing recirculation valve) or ammonia outlet valve (FRC-6) and slurry valve (closing slurry recirculation valve) to granulator, depending on where the flow is needed.

G.) Start ammonia pump from the control panel in the granulation control room. Vapor pressure will start to flow (to granulator or preneut tank depending on which valve is open) as soon as the level and pressure builds in the vapor drum.

NOTE* If preneut tank is too full for flows, you may have to put slurry and ammonia flows to granulator first to make room for the acid and ammonia flows in the preneut tank. Which would mean doing steps 1, 2, 3, 4, 4B, 4C, 5, 6, and 8A,B,C,D,E,Fb,G. Then do steps 4A, and 8Fa.

H.) Turn natural gas and drafts on #1 and #3 burners.

I.) Start slurry pump and recirculate back to preneut tank.

J.) Start dry system.

K.) Turn steam on granulator sprays.

L.) Start pond water valve by supply pump.

NOTE* Supply pump is west pump by stairway to fluorine tank top.

M.) Turn steam off granulator sprays.

N.) Put slurry flows into the granulator.

9.) After granulation load builds.

A.) Start cooler.

B.) Start cooler fan.

C.) Open jeffery feeder which puts product into cooler.

D.) Start Arrmoz dust treatment when cooler has sufficient load.

RUPTURED AMMONIA LINE

1.) After the ammonia leak has been fixed and checked for leaks, follow the start up procedure for start up after a power failure.

OPERATORS DUTIES

A-operator; Steps, 1, 2A, 3, 4A, 4B, 5, 7, 8A, 8B, 8F, 8G, 8N, 8M, 8K, 8J, 9A, 9B, 9C.
B-operator; Steps, 1, 2B, 6, 8C, 8D, 8E, 8H.
C-operator; Steps, 1, 2, 4C, 8L, 8I, 9D.

NORMAL OPERATIONS

1.) To control level in vapor drum at 20%, increase or decrease the liquid control (LIC-6) valve set point.

2.) To control vapor pressure in vapor drum increase or decrease (PRC-1) controller for 60 to 130 psi and have manual 35# steam valve open.

3.) Control normal mole ratio of .60 in scrubber acid tank by the amount of:

A.) Incoming 42% acid.

a.) To adjust, increase or decrease the controller set point to desired gpm of acid.

B.) Excess amount of ammonia added to granulator.

a.) To adjust, increase or decrease the controller setpoint (FRC-6) to desired psi.

C.) Excess amount of ammonia added to preneut tank.

a.) To adjust, increase or decrease the controller setpoint (FRC-7) to desired psi.

4.) To control the level in scrubber acid tank open incoming 42% acid valve to pump tank and have Phos start the pump. Open reactor feed suction valve to preneut tank. (Discharge valve is on granulator deck behind control room). Open discharge valve and start pump.

5.) Control preneut tank at desired mole ration by the amount of:

A.) Reactor feed acid being pumped from scrubber tank by increasing or decreasing the setpoint on the reactor feed controller.

B.) Increase the amount of ammonia to preneut tank by increasing or decreasing the setpoint on the (FRC-7) controller.

6.) To control slurry to granulator, increase or decrease the flow by adjusting slurry to granulator controller.

7.) Control the amount of ammonia to the granulator. Adjust (FRC-6) to increase or decrease the amount of ammonia to the granulator so bed becomes dry. (Excess ammonia flow will raise mole ratio in scrubber acid tank which in turn will raise mole ratio in preneut which in turn will raise granulator mole ratio etc, etc, etc,).

NORMAL START UP

1.) Follow same steps as the power failure start up procedure except when coming to step 4 the scrubber pump tank will have to be partially filled with 42% incoming acid before starting the procedures. Start with 4A, then 4B, and then proceed with start up procedure 2-9D.

OPERATORS DUTIES

Same as for power failure start up.

NORMAL SHUT DOWN

1.) To shut plant down reverse normal start up procedures 9D to 2.

EMERGENCY SHUT DOWN

Power Failure

1.) Close the chain valve to vapor drum.

2.) Close the 35# and 125# steam a manual block valves.

3.) Close Ammonia Vapor to Granulator.

4.) Close Ammonia Vapor to the Preneut tank.

5.) Close sulfuric valve for grade control.

6.) Shut fire and natural gas off.

7.) Take slurry pump out of service and steam out slurry pump while there is still steam.

8.) Block slurry to granulator block valve closest to head end of granulator (West valve)

9.) Open slurry and recirculation to preneut valve (furthest to the East)

10.) Turn steam on granulator sprays to steam out slurry and then shut off.

11.) Turn steam on slurry line to slurry pumps.

12.) Shut pond water valve by supply pump (west pump by stairway to fluorine tank top.

OPERATORS DUTIES

A-operator; steps, 3, 4, 5, 7, 8, 9.
B-operator; steps, 1, 2, 12.
C-operator; steps, 6, 10, 11.

EMERGENCY SHUTDOWN

Ruptured line

1.) Use same steps as emergency shutdown during a power failure, unless valves cannot be closed because of leak, then proceed as follows.

   A.) Close safety shut off switch to sphere that is on granulation plant control panel to shut ammonia flow off.

   B.) Evacuate all personnel and do not return until safe.

OPERATING LIMITS

1.) Consequences of deviation.

   A.) If ammoniation of preneut tank is too fast it will cause more fumes than the scrubber system can pull away and will cause fumes to vent out from any cracks, holes, or unsealed duct work, (which under normal conditions would not leak), and fill the plant with ammonia fumes. This will cause a hazardous environment.

B.) If ammoniation of granulator is too fast it will cause more fumes than the scrubber system can pull away and will cause fumes to vent out from the doors on the granulator tail end, head end, retainer ring, and out cracks and unsealed duct work, (which under normal conditions would not leak), and fill plant with ammonia fumes. This will cause a hazardous environment.

2.) If the mole ratio on the scrubber acid exceeds .60 (D.A.P.) at 1.460 specific gravity (below .60 fluorine is released up the stack), the acid solution will start to set up and plug the scrubber system which in turn will stop the scrubber system from pulling ammonia fumes from the preneut tank and granulator and ammonia fumes will start venting into the building. If the mole ratio is below .40, you will be putting an excessive amount of flourine up the stack. To control the mole ratio sample the solution every 1/2 hour and run a titration on it to check the mole ratio.

3.) If the mole ratio is high in scrubbers do one of the following.

A.) Add more acid to scrubber system. Adjust controller higher than previous set point.

B.) Cut some ammonia to preneut tank. Adjust controller lower than previous set point.

C.) Cut some ammonia to granulator. Adjust controller lower than previous set point.

4.) If the mole ratio is low in scrubbers do one of the following.

A.) Cut some acid to scrubber system. Adjust controller lower than previous set point.

B.) Add some ammonia to preneut tank. Adjust controller higher than previous set point.

C.) Add some ammonia to granulator. Adjust controller higher than previous set point.

NOTE* To add or cut acid you use acid feed controller to the scrubber tank. To add or cut ammonia vapor to the preneut tank you use ammonia vapor controller to the preneut tank (FRC-7). To add or cut ammonia vapor to the granulator you use ammonia vapor controller to the granulator (FRC-6).

5.) If your mole ratio in the preneut tank exceeds the amount needed for the product you are making it will make the preneut tank acid set up, which in turn will stop the preneut system and ammonia will be vented to scrubbers (can be curtailed by step 2).

A.) 18-46-0 - 1.20 to 1.40 mole ratio 1560 - 1580 spg.

B.) 16-20-0 - .60 to .65 mole ratio 1600 - 1620 spg.

C.) 11-55-0 - .80 to .85 mole ratio 1600 - 1610 spg.

D.) 11-52-0 - .80 to .85 mole ratio 1600 - 1610 spg.

6.) If the mole ratio is high in preneut tank do one of the following

A.) Add more 42% feed acid from the scrubber tank. (Adjust controller higher than previous set point.)

B.) Cut some ammonia from preneut tank using ammonia vapor to preneut tank (FRC-7). (Adjust controller lower than previous set point).

7.) If the mole ratio is low in preneut tank do one of the following:

A.) Cut some feed acid from the scrubber tank (FRC-9). Adjust controller lower than previous set point.

B.) Add some ammonia vapor to preneut tank (FRC-7). Adjust controller higher than previous set point.

8.) If mole ratio in the granulator exceeds the amount needed for the product you are making around a 1.04 for MAP products and a 1.75 for DAP products it could cause:

A.) A rise in the scrubber acid and in turn to the preneut acid eventually cause one or both to set up.

B.) It could also exceed the amount of ammonia that can be absorbed into the air flow in the granulator/preneut duct to scrubber system. This would let fumes vent out doors on tail end of granulator, duct doors and cracks that aren't sealed, out head end seal ring of granulator that under normal conditions would not leak, and fill the plant with ammonia fumes. This will cause a hazardous environment.

9.) If the ammonia vapor pressure on the vapor drum was to exceed 150 lbs there is an ammonia pressure relief valve that automatically vents out the top of the plant. If the ammonia vapor pressure on the vapor drum goes below 40 psi, it could cause the system to freeze up. If the steam pressure was to exceed 75 lbs. there is a steam pressure relief valve that automatically vents out the south wall of the plant. If you loose ammonia flow to the ammonia vaporizer, the vaporizer will heat up. To control the pressure on the ammonia vapor drum use ammonia vapor drum pressure controller (PRC-1) to desired set point (between 60 and 130 lbs).